## STIC-Biotech/ChemLib

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Huff, Sheela Monday, April 28, 2003 4:44 PM STIC-Biotech/ChemLib search request for 09/682667

Sent: To: Subject:

Please search and interference search SEQ ID No. 2, 4, 6, and 8 of the above application.

Thanks-

Sheeta Huff Art Unit 1642 CNU-8307 mailbox 8E12 305-7866



Point of Contact P. Sheppard Telephone number: (703) 308-4499

Searcher:
Phone:
Location:
Date Picked Up:
Date Completed: 5/1/03
Searcher Prep/Review:
Clerical:
Online time:

TYPE OF SEARCH:
NA Sequences:
AA Sequences:
Structures:
Bibliographic:
Litigation:
Full text:
Patent Family:
Other:

VENDOR/COST (where applic.)
STN:
DIALOG:
Questel/Orbit:
DRLink:
Lexis/Nexis:
Sequence Sys.:
WWW/Internet:
Other (specify):

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Run on:
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April 29, 2003, 11:19:46; Search time 27.2507 Seconds (without alignments) 1610.532 Million cell updates/sec
                                                                                                                                                                                                                      GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
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Sequence: Title: Perfect score: 1094 US-09-682-667-2 MEVLRRSSVFAAEIMDAFDR.....TLCSFGRFLKAAFFLLLPER

Scoring table: Gapop 10.0 , BLOSUM62 Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters:

671580

Minimum Post-processing: 80 80 seq length: 2000000000 length: Minimum Match 08 0

Maximum Match 100% Listing first 45 summaries

Database 6: 7: 9: 10: 11: 12: 13: 14: 15: 15: SPTREMBL\_21:\* sp\_archea: \* sp\_rodent:\*
sp\_virus:\* sp\_phage: \* sp\_organelle:\* sp\_mhc:\* sp\_mammal:\* sp\_invertebrate:\* sp\_human:\* sp\_fungi:\* sp\_bacteria:\* sp\_unclassified:\*
sp\_rvirus:\*
sp\_bacteriap:\* sp\_vertebrate:\* sp\_plant:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

sp\_archeap: \*

## SUMMARIES

	, 16	15	14	13	12	11	10	9	80	7	6	5	4	ω	2	1	Result No.
٦.	151.5	154.5	154:5	155	159	213.5	234	243.5	243.5	244.5	846.5	. 886	892	1035.5	1076	1094	Score
	13.8	14.1	14.1	14.2	14.5	19.5	21.4	22.3	22.3	22.3	77.4	81.0	81.5	94.7	98.4	100.0	Query Match L
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	Q9mzs7 ovis aries	O35844 mus musculu	· Q9qwx2 mus musculu	Q923r6 cricetulus	O35843 mus musculu	Q95u83 drosophila	Q9v612 drosophila	Q9ngx3 drosophila	Q8t8y5 drosophila	Q9v9c8 drosophila	088857 rattus norv	Q9dgj5 gallus gall	Q9i8i2 gallus gall	Q9umx3 homo sapien	Q9ul32 homo sapien	O35425 rattus norv	Description

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	9.0	9.0	9.4	10.2	10.7	10.7	11.4	11.6	11.7	12.1	12.2	12.2	12.2	12.4	٠	•	•	12.7	•	•	•	13.3	13.4					13.8	
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	gall	O55179 mus musculu	7 mus	Q9nr76 homo sapien	homo sap	_	Q9jkl3 rattus norv	P97287 mus musculu	Q9z1p3 rattus norv	Q9gmg7 ovis aries	Q9cyw5 mus musculu	Q9jk59 rattus norv	Q8sq43 felis silve	Oi	Q9bdx7 bos taurus	3 xen	bos t	Q8wz49 homo sapien	Ο.	xen		8	oryc	homo	Q99n36 mus musculu	brach	felis	homo	Q9nla2 sus scrofa

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## ALIGNMENTS

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                                 ALD DARREN REPORT OF THE PROPERTY OF THE PROPE
Inohara N., Ekhterae D., Garcia I., 'Carrio R., Merino J Chen S., Nunez G.;
Submitted (DEC-1997) to the EMBL/GenBank/DDBJ databases EMBL; AF0277954; AAB87418.1; -
EMBL; AF027707; AAC53582.1; -
MGD; MGI:1858494; Bok.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR0002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             035425;
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01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein.
BOK OR BOKL OR BOK OR MTD.
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Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
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Hsu S.Y., Hsu
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SEQUENCE FROM N.A.

HSU S.Y., HSueh A.J.W.;

"CDNA cloning of the human Bok gene.";

Submitted (SEP-1998) to the EMBL/GenBa
R EMBL; AF089746; AAF09129.1; -.

JR InterPro; IPR002475; BC12_Family.

DR InterPro; IPR002475; BC12_Family.

DR Pfam; PF00452; BC1-2; 1.

DR SMART; SM00337; BCL; 1.

DR PROSITE; PS50062; BC12_FAMILY; 1.

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01-MAY-2000 (TrEMBLrel. 13, La.
01-JUN-2002 (TrEMBLrel. 21, La.
BCl-2 related ovarian killer.
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SMART; SM00337; BCL; 1;
PROSITE; PS50062; BCL2_FAMILY;
SEQUENCE 213 AA; 23456 MW;
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Mammalia; Eutheria;
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                  STKPGFRSHWLVATLCS
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                                                                                                    WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
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                                                                                                                                                     Q91812;
Q91812;
                                                                 01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 101-JUN-2002 (TrEMBLrel. 21, 18c1-2-related ovarian killer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29UMX3;
01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein (Similar to BCL-2-related ovarian killer)
                    Eukaryota;
                                               Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Strausberg R.;
Submitted (NOV-2001) to the
EMBL; AF174487; AAD51719.1;
EMBL; BC006203; AAH06203.1;
EMBL; BC017214; AAH17214.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9UMX3
      Archosauria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS50062; BCL2_FAMILY; SEQUENCE 212 AA; 23280 MW;
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TISSUE=MUSCLE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Gene expression protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zhang
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GRLAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT
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203; Conservative
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₽
                      Metazoa;
                                                                                                                                                                              PRELIMINARY;
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    ; Chordata;
Neognathae;
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                                                                                     Last sequence update)
Last annotation update)
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                                                                                                                                     Created)
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Pred. No. 2.6e
3; Mismatches
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                                                                   protein.
Craniata; Vertebrata; Eute
; Galliformes; Phasianidae;
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053ED605FF8EF5B2 CRC64.
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2.6e-83;
hes 6;
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  Euteleostomi;
|dae; Phasianinae;
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Best Local S
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O9DGJ5;
O1-MAR-2001 (TrEMBLrel. 16, Created)
O1-MAR-2001 (TrEMBLrel. 16, Last sequence update)
O1-JUN-2002 (TrEMBLrel. 21, Last annotation updat
Bc1-2-related ovarian killer protein.
Gallus gallus (Chicken).
Gallus garda; Chordata; Craniata; Vertebrat
                                                                                                                                                                       "Characterization and Expression of Bok in the Submitted (JUL-2000) to the EMBL/GenBank/DDBJ EMBL; AF290888; AAG01182.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhang H., Holzgreve W., De Geyter "Evolutionarily conserved Bok prot FEBS Lett. 480:311-313(2000). EMBL; AF275944; AAF81282.1; InterPro; IPR000712; Bc12_BH. InterPro; IPR002475; Bc12_family.
                                                                                                                                    Pfam; PF00452; Bcl-2; 1
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gallus.
NCBI_TaxID=9031;
                                                                                                                 SEQUENCE
                                                                                                                           PROSITE;
                                                                                                                                                        InterPro; IPR000712; Bcl2_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                            NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                 Archosauria; Aves;
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GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                  STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                           WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEEVRKTLATWLRRRGGWTDVLKCVV
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                             MEVLRRSSVFAAEVMEVFBRSPTDKELVSQAKALCRDYINSRLIRXGVSWSKPEHNTPVP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                 WGKVVSLYAVAAGLAVDCVRHAQPAMVHTIVDCLGEFVRKTLVTWLKRRGGWADITKCVV
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                                                                         165;
                                                                                 Similarity
                                                                                                                PS50062;
213 AA
                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                 ΑĄ;
                                                                                                               BCL2_FAMILY;
; 23658 MW;
                                                                                                                                                                                                                                                                 Neognathae;
                                                                                 81.0%;
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                                                                       23;
                                                                      Score 886; DB 13;
Pred. No. 3.6e-70;
3; Mismatches 25;
                                                                                                                                                                                                                                                                 Craniata; Veri; Galliformes;
                                                                                                                1.
07CC06BEBD7311EC CRC64;
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                                                                                                                                                                                                                                                                 Phasianidae;
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                                                                                                                                                                                                  Hen Ovary.";
                                                                                            Length 213;
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Best Local S
Matches 170
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01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence up
01-JUN-2002 (TrEMBLrel. 21, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=98024143; PubMed=9356461;
Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok is a pro-apoptotic bcl-2 protein with restricted e
reproductive tissues and heterodimerizes with selective
bcl-2 family members.";
Proc. Natl. Acad. Sci. U.S.A. 94:12401-12406(1997).
                                                                                                                                                                                                                                                       PROSITE; PS50062; BCL2_FAMILY; SEQUENCE 170 AA; 18729 MW;
                                                                                                                                                                                                                                                                                Pfam; PF00452; Bcl-2; SMART; SM00337; BCL;
                                                                                                                                                                                                                                                                                                        InterPro; IPR000712; BC12_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                   Submitted (FEB-1998) to the EMBL; AF051093; AAC61928.1;
                                                                                                                                                                                                                                                                                                                                                            domain induces apoptosis
2 proteins.";
                                                                                                                                                                                                                                                                                                                                                                   HSu S.Y., Hsueh A.J.W.;
Hsu S.Y., Hsueh A.J.W.;
"A splicing variant of the Bcl-2."
"A splicing variant of the Bcl-2."
                                                                                                                                                                                                                                                                                                                                                                                                TISSUE=OVARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bcl-2-related ovarian killer protein.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=OVARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rattus norvegicus (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10116;
 138
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             STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 213
                                                              WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180
                                                                                               GGRLAEVCTVLLRL------
                                                                                                               GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                 MEVLRRSSVFAAEIMDAFDRSPTDKELVÄQAKALGREYVHARLLRAGLSWSAPERASPAP
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                                                                                                                                                     MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
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 STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                  WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STDPSLRSHWLVAAVCSFGHFLKAIFFVLLPER
                                                                                                                                                                                                      170;
                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chordata;
Rodentia;
                                                                                                                                                                                                                  77.48;
79.88;
                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                Score 846.5;
Pred. No. 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata;
                                                                                                                                                                                                                                                       1.
15E54361F448CF16 CRC64;
                                                                                                                                                                                                      ed. No. 8.2
Mismatches
                                                                                                                                                                                                                                                                                                                                                                       member Bok with a truncated BH3 dimerization with anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  213
                                                                                                                                                                                                 3.2e-67;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Muridae;
                                                                                                                                                                                                                            11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stricted expression in selective anti-apoptotic
                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Murinae;
                                                                                                                                                                                                                               170;
                                                                                                                                                                                                      43;
                                                                                                   -GIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rattus.
                                                                                                                                                                                                      Gaps
                                                                                                                                                     60
                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                          Bcl-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                   77
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Q9V9C8

Q9V9C8

PRELIMINARY;

PRT;

300

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RESULT 7

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A Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Aballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Aballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Aballew R.M., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
Aballew R.M., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
Aballew R.M., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
Aballew R.M., Bolther A., Doung Z., Bayraktaroglu L., Bolshakov S.,
Aballew R.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
Aballew R.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
Aballew R.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
Aballew R.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
Aballew R.M., E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
Aballew R.M., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.
Aballew R.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.
Aballew R.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.
Aballew R.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.
Aballew R.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.
Aballew R.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.
Aballew R.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.
Aballew R.J., Houston R.J., Hernandez J.R., Houck J.,
Aballew R.J., Howard T.J., Wei M.-H., Ibegwam C.,
Aballew R.J., Howland T.J., Wei M.-H., Ibegwam C.,
Aballew R.J., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.
Aballew R.J., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.
Aballew R.J., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.
Aballew R.J., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.
Aballew R.J., Li J., Li Z., Liang Y., Lin X.,
Aballew R.J., Li J., Li Z., Liang Y., Lin X.,
Aballew R.J., Ketchum R.J., Li J., Li Z., Liang Y., Lin X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-20196006; PubMed-10731132;
Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Goçayne J.D.,
Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
Abril J.F., Baldwin D.,
Bayani A., Bayandale J., Rayraktarodin L., Beasley E.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Zhang H.,
Reed J.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAY-2000 (TrEMBLrel. 13, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-OCT-2000 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Death EXECUTIONER BCL-2 homolog protein (PROAPOPTOTIC BCL-2 hom
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1).
DEBCL) RDORG1 OR BOK OR BCL2. OR BG1 OR ROB-1 OR CG12397.
DESCHOR BCL30R BG1 OR ROB-1 OR CG12397.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Debcl, a proapoptotic Bcl-2 homologue, is a Drosophila melanogaster cell death machinery J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Drosophila pro-apoptotic Bcl-2/Bax homolog conservation of cell death mechanisms.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Colussi P.A., Quinn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Drob-1, a Drosophila cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Miura M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-20105529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ephydroidea; Drosophilidae; Drosophila NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Arthropoda; Tracheata; Ho
Pterygota; Neoptera; Endopterygota; Diptera;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J. Biol.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Richardson H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-20153510;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Igaki T., Kanuka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-EMBRYO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : FROM N.A.
Huang Q.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chem. 0:0-0(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kanuka H.,
(SEP-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-TERMINUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kumar S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               н.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=10684252;
nn L.M., Huang D.C.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sci. U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=2015529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                K
e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ţ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Inohara N., Sawamoto K., Okano H., to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     member of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matsuyama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  z
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bc1-2/CED-9
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S
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hammock
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hexapoda; Ins
; Brachycera;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   reveals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           component.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nunez
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X
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Read
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  G.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Godzik
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insecta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fleischmann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  that promotes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          l S.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Miura
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                                                                       Reese M.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Muscomorpha
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                                                                                                                                    D.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3
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RESULT
Q8T8Y5
ID Q8
AC Q8
DT 01
DT 01
DT 01

8

Q8T8Y5; Q8T8Y5; 01-JUN-2002 01-JUN-2002 01-JUN-2002

(TrEMBLrel. (TrEMBLrel. (TrEMBLrel.

21, 21, 21,

Created)
Last sequence up
Last annotation

update)

PRELIMINARY;

PRT;

299

AA

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Qy
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                                                            QΥ
                                                                                    DЬ
                                                                                                     QΥ
                                                                                                                                                                     SOTTT
  밁
                                                                                                                            Matches
                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                    Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Spier E., Spradling A.C., Stapleton M., Strony R., Waller E., Wang A.H., Walsskas R., Tector C., Turner R., Venter E., Wang A.H., Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Walssam, Woodage T., Worley K.C., Wu D., Yang S., Yang Yen R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Yeh R.-F., Zaveri J.S., Zhan M., Zhu S., Zhu X.,
                                                                                                                                                                               CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
Zhou L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Putative
protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Potential (BOK).";
                                                                                                                                                                                                            DNA-binding; Zinc-finger.
                                                                                                                                                                                                                    Interpro: IPR000712; Bc12_BH.
Interpro: IPR0002475; Bc12_fam1y.
Interpro: IPR000822; Znf_C2H2.
Pfam; PF00452; Bc1-2; 1.
SMARR; SM0037; BC1-2; 1.
PROSITE; PS50062; BC12_FAMILY; 1.
PROSITE; PS50157; ZINC_FINGER_C2H2_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Zheng X.H., Zhong E.N., Zhong W., Zhou X., Zhu S., Zhu Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.; "The genome sequence of Drosophila melanogaster."; science 287:2185-2195(2000).
                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                  CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
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  216
                     137
                                           156
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                                                                                    96
                                                                                                      26
                                                                                                                                      Local
                                                                                                      ELVAQAKALGREYVHARLLRAG-LSWSAPER----ASPAPGGRLAEVCTVLLRLGDELEQ
DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
                                          MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                                     IRPSVYRNVARQL-HIP---LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAV
                                                                                   DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
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                                                                                                                            Similarity
56; Conserv
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P., White K.;
ve Drosophila
                                                                                                                                                                                                                                                                                             FBgn0029131; debcl.
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Steller H.;
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217
300
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                                                                                                                            Conservative
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                                                                                                                                                                    AA;
                                                                                                                                                                    86 M
215 I
217 C
32940 MW;
                                                                                                                                      22.3<del>8</del>;
35.9<del>8</del>;
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                                                                                                                            27;
                                                                                                                                                                                                                                                                                                                                                                                        EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL/GenBank/DDBJ
                                                                                                                                      Score 244.5;
Pred. No. 1.4
                                                                                                                                                                    MISSING (IN REF. 4).
I -> V (IN REF. 1).
C -> R (IN REF. 4).
; FF29EOADCF3D0942 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of
                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mammalian
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                                                                                                                                      .4e-13;
  251
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                                                                                                                                                  DB
                                                                                                                            64;
                                                                                                                                                                                                                                                                                                                                                                                                            Cagan R.L.;
nat functions
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                                                                                                                                                300;
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Smith H.O
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Best Local 9
                                                                                                                                                                                                                                                                                                                                                     Q9NGX3;
01-OCT-2000
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscc Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID=7227;
                                       FlyBase; FBgn0040491; Buffy.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BcL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                     01-OCT-2000 (TrEMBLrel.
01-OCT-2000 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J., Champe M., Chavez C., Dorsett V., Dresnek D., Farian D., Frise George R., Gonzalez M., Guarin H., Krommiller B., Li P., Liao Miranda A., Mungall C.J., Nunoo J., Pacleb J., Paragas V., Par Patel S., Phouanenavong S., Wan K., Yu C., Lewis S.E., Rubin G
                                                                                                                                                                                                                                                                                                              BC1-2-like protein BUFFY OR CG8238.
                                                                                                                                                                                                                                                                                                                                                                                             Q9NGX3
                                                                                                                                   Drosophila melanogaster cell dead
J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                            Colussi P.A., Quinn L.M., Huang D.C., Richardson H., Kumar S.;
                                                                                                                                                                                                                                                             Ephydroidea;
                                                                                                                                                                                                                                                                                   Eukaryota;
                                                                                                                                                                                                                                                                                                  Drosophila melanogaster (Fruit fly).
                                                                                                                                                                "Debcl,
                                                                                                                                                                                                      MEDLINE=20153510; PubMed=10684252;
                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                             NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Celniker S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
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                             PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               261
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                                                                                                                                                                                                                                                                                                                                                                                                                                                              -LEWITLVIGVVFGLILVFMILRFIFNLIVPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RSHWLVATL-CSFG----RFLKAAFFLLLPE 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGLSVDCVRQGHPEYLPKLMESVSEVIEDELVPWINENGGWSGINTHVLPTTNSLNP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW----TDVLKCVVSTDPGF
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                                                                                                          AF237864; AAF44120.1;
Q07817; 1MAZ.
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                                                                                                                                                              a proapoptotic bcl-2 homologue,
  313
                                                                                                                                                                                                                                                       Metazoa; Arthropoda; Tracheata; Hexapoda; Ins.
Neoptera; Endopterygota; Diptera; Brachycera;
Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  299 AA;
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  AA;
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AA; 33379 MW;
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    34909 MW;
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31.1%;
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15, Last sequence update)
21, Last annotation update)
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Pred. No. 1.
                                                                                                                                                 homologue, is a component of the death machinery.";
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  775A41FDDD5B678E CRC64;
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                                                                                                                                                                                          Coombe M.,
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, Park S.,
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                                             RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Baster E.G., Shang Q., Chen L.X.,
RA Barndon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Wan K.H., Dayle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Agbayani A., An H.-J., Andrews Pfannkoch C., Baldwin D.,
RA Belson K.Y., Benos P.V., Berman B.P., Bhandari D., Belshakov S.,
RA Belson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Cherry J.M., Cawley S., Dahlke C., Davsepport L.B., Davies P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Durbin K.J., Evangelista C.C., Ferrac C., Ferriera S., Fielschmann W.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Helman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA McIntosh D.R., Nurphy B., Murphy L., Muzny D.M., Nelson D.L.,
RA Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Sine B.C., Siden Kiamos I., Simpson M., Skupski M.P., Shen H.,
RA Syirs Ra, Fector C., Turner R., Venter E., Wang A.H., Wang X.,
RA Wang Z.-Y., Wassarman D.A., Weinstook G.M., Weissenbach J.,
Weissenbach J., Wassarman D.A., Weinstook G.M., Weissenbach J.,
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01-MAY-2000 (Trem
01-MAY-2000 (Trem
01-JUN-2002 (Trem
CG8238 protein.
BUFFY OR CG8238.
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Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J. Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yaye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -LEWITLVIGVVFGLILVFMILRFIFNLIVPK
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31.1%;
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                      Yao Q.A.,
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Q95UB3
ID Q95UB
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RA Nunco
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Best Local
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InterPro; IPR000712; Bcl2_BH.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                           Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J. Champe M., Chavez C., Dorsett V., Farfan D., Frise E., Georg Gonzalez M., Guarin H., Li P., Liao G., Miranda A., Mungall Nunco J., Pacleb J., Paragas V., Park S., Phouanenavong S., Yu C., Lewis S.E., Rubin G.M., Celniker S.; Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases. EMBL; AY058249; AAL13478.1; -.
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Interpro; IPRO02475; BCL2_family.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BcL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 247 AA; 27466 MW; A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata;
Pterygota; Neoptera; Endopterygota; Diptera
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AE003825; AAF58628.1; HSSP; Q07817; 1MAZ. FlyBase; FBgn0040491; Buffy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.; "The genome sequence of Drosophila melanogaster."; Science 287:2185-2195(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-BERKELEY;
                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=7227;
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156
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                                                                                                                      ELVAQAKALGREYVHARLLRAG-LSWSAPER----ASPAPGGRLAEVCTVLLRLGDELEQ 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KELVAQAKALGREYVHARLLRAGL--SWSAPERASPAPG----GRLAEVCTVLLRLGDEL
MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                                                                          DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
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                                          IRPSYYRNVARQL-HIP---LQSEPVYTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAV 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGLSVDCVRQGHPEYLPKLMESVSEVIEDELVPWINENGGW
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                                                                                                                                                                                                                                                                                          34649 MW;
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35.0%;
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Drosophila.
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                                                                                                                                                                                                                 Score 213.5; DB 5
Pred. No. 7.7e-11;
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Pred. No. 9e-13;
9; Mismatches 61;
                                                                                                                                                                                                                                                                                          46B22FED1CC6F01F CRC64;
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A2C4325AFF4C1620 CRC64;
                                                                                                                                                                                          ed. No. 7.76 Mismatches
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                                                                                                                                                                                                                                       DB 5;
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a; Brachycera;
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e E., George
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L C.J.,
Wan K.,
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RESULT 13
Q923R6
ID Q923R6;
AC Q923R6;
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Best Local
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Immunity 7:629-639(1997).
EMBL; U51277; AAC53458.1; --
EMBL; U51278; AAF3.
                                                                                                                                                                                                                                                                                                                                              Pfam; PF00452; Bc1-2; 1.

Pfam; PF00452; Bc1-2; 1.

SMART; SM00337; BCL; 1.

SMART; SM00265; BH4; 1.

SMART; SM00265; BH4; 1.

TIGRFAMS; TIGR00865; bc1-2; 1

PROSITE; PS50062; BCL2_FAMILY

PROSITE; PS01080; BH1; 1.

PROSITE; PS01259; BH3; 1.
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01-JAN-1998
01-JAN-1998
01-JUN-2002
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                                                                                                                                                                                                                                                                                                                  SEQUENCE
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Mammalia; .
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InterPro; IPR002475; BCL2_family.
InterPro; IPR004775; Bc12_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=98051053;
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JINE=98051053; PubMed=9390687;
JX.-F., Weber G.F., Cantor H.
                                                                                                                                                                                                                                                SPTDKELVAQAKALGREYVHARLLRAGLSWS-----
                                                                                               TYLNDHLEPWIQENGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET
                                                                                                                                       ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA
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                                                                                                                   EFVRKTLATWLRRRGGW-----
                                                                                                                                                    PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI 114
                                                                                                                                                                                                                           SQSNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGN 54
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                                                                                                                                                                                                                                                                        52;
                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                           PS01260;
PS50063;
                                                                                                                                                                                                                                                                                                                                               PS50062; BCL2_FAMILY;
PS01080; BH1; 1.
PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Metazoa;
Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JS (Mouse).
Metazoa; Chordata; C
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                                                                                                                                                                                                      -SPAPGGR--------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
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                                           PRELIMINARY;
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                                                                                                                                                                                                                                                                                                                  AA;
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; BH4_2; 1.
A; 26122 MW;
                                                                                                                                                                                                                                                                                  14.5%;
22.3%;
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21,
  19,
19,
21,
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Last
                      Created)
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Pred. No. 3.3e
31; Mismatches
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Last annotation updat
                                                                                                                   -TDVLKCVVSTDPGFRSH-----WLVAT
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Sciurognathi; Muridae;
                                           PRT;
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  sequence update) annotation updat
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.3e-06;
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  update)
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; Murinae; Mus
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Cricetulus B-cell lymphoma

protein

BC12\_BH. BC12\_BH4. BCL2\_family.

Indels Length

Gaps

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18

Mus

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RESULT
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          SEQUENCE FROM N.A.

MEDLINE-20350651; Pubmed-10894153;
Rucker E.B. III, Dierisseau P., Wagner K.U., (
Wynshaw-Boris A., Flaws J.A., Hennighausen L.
"Bcl-x and Bax regulate mouse primordial germ
apoptosis during embryogenesis.";
Mol. Endocrinol. 14:1038-1052(2000).
EMBL; AF088904; AAC72232.1;
HSSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIGRPAMS; TIGRO0865; bc1-2; 1.

PROSITE; PS50062; BC12_FANILY; 1.

PROSITE; PS01080; BH1; UNKNOWN_1.

PROSITE; PS01258; BH2; UNKNOWN_1.

PROSITE; PS01259; BH3; UNKNOWN_1.

PROSITE; PS01250; BH4_1; UNKNOWN_1.

PROSITE; PS01260; BH4_2; 1.

SEQUENCE 236 AA; 26500 MW; BEDF05
                                                                                                                                                                                                          Q9QWX2;
01-MAY-2000 (TrEMBLrel.
01-MAY-2000 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Construction of a robust CHO cell line for biopharmaceutical use. Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.

EMBL; AF404339; AAK92201.1; -.

InterPro; IPR000712; Bcl2_BH.

InterPro; IPR003093; Bcl2_BH4.

InterPro; IPR00475; Bcl2_Family.

InterPro; IPR00475; Bcl2_reg.
     EMBL;
HSSP;
MGD; M
                                                                                                                                    Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalla; Eutheria; Rodentia;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam;
                                                                                                                                                                                                                                                             Q9QWX2
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NCBI_TaxID=10030;
                                                                                                                                                                                                Bcl-x (Fragment).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Construction of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
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AMS; TIGR00865; 1
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47; Conserv
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Metazoa; Chordata;
Eutheria; Rodentia;
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21,
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data; Craniata; Vertebrata; Euteleostomi;
ntia; Sciurognathi; Muridae; Cricetinae;
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                                                                                                                                                                                                             Created)
Last sequence update)
Last annotation updat
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Pred. No. 7.5e
35; Mismatches
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                                                                                    Wagner K.U.,
                                                                                                                                                                                                                                                             188
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les 78;
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                                                              cell survival
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Best Local 9
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                                                                                                                                                                     STRAIN=B6/CBA: TISSUE=THYMUS;
MEDLINE=9805103; PubMed=9390687;
Yang X. F., Weber G. F., Cantor H.;
"A novel Bcl-x isoform connected to apoptosis in T cells.";
Immunity 7:629-639(1997).
EMBL: U51278; AAC53459.1; -.
HSSP: P53563; lAF3.
                                                        MGD; MGI:88139; Bcl21.
InterPro; IPR000712; Bc.
InterPro; IPR003093; Bc.
InterPro; IPR003475; Bc.
InterPro; IPR004725; Bc.
InterPro; IPR004725; Bc.
InterPro; IPR004725; Bc.
Pfam; PF00452; Bc.1-2; I
Pfam; PF00180; BH4; I.
SMART; SM00337; BCL; I.
SMART; SM00365; BH4; I.
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SMART; SM00265; BH4; 1.
PROSITE; PS50062; BCL_FAMILY; 1
PROSITE; PS501080; BH1; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01259; BH4_1; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS01260; BH4_2; 1.
NON_TER 188 188
SEQUENCE 188 AA; 21126 MW; 4
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InterPro; IPR003093; Bd
InterPro; IPR002475; Bd
InterPro; IPR002475; Bcl-2; I
Pfam; PF00452; Bcl-2; I
Pfam; PF02180; BH4; 1.
TIGREAMS;
PROSITE; P
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PROSITE; P
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01-JAN-1998
01-JUN-2002
                                                                                                                                                                                                                                                                                           Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalla; Eutheria; Rodentia;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
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  PS01258;
PS01259;
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                         ; TIGR00865; bc1-2; 1. PS50062; BCL2_FAMILY; PS01080; BH1; 1.
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 BH1;
BH2;
BH3;
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Last sequence up
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Pred. No. 6.
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tches 69;
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PROSITE; PS50063; BH4_2; 1.
SEQUENCE 233 AA; 26033 MW; 3083F2D8327E072E CRC64;
156 EFVRKTLATWLRRRGGW 172
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172 TYLNDHLEPWIQENGGW 188
                                                                55 PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI 114
                                                                                                                                                          57 ------SPAPGGR-------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI 95
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Search completed: April 29, 2003, 11:25:39 . Job time : 29.2507 secs

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Maximum Match 100%
Listing first 45 summaries
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                             62
                                                                                 28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                       Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity) PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       brain, expression is higher and localized in the neuro
and in the cortical plate.
DOMAIN: The BH4 domain is required for anti-apoptotic
for interaction with RAF-1 (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bc12 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTM: Phosphorylation/dephosphorylation on
                                                      {\tt MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA}
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VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                           ----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR---
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PS50062; BCL2_FAMILY;
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IPR004725; Bc12_reg.
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AAA77687.1; -.
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CLEAVAGE (BY CASPASES) /
PHOSPHORYLARITON (BY PKC
A -> R (IN REF. 2).
E -> G (IN REF. 2).
S -> Y (IN REF. 2).
L -> Q (IN REF. 2).
                                                                                                               35;
                                                                                                                         Score 164.5; DE Pred. No. 8e-08;
                                                                                                                                                                     E7688CB9071A872A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (By similarity)
                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (See http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         There are no rest
                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Usage
                                                                                                               79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ser-70 regulates Bcl2
                                                                                                                                                                                                                                      ES) (BY SIMILARITY).
PKC) (BY SIMILARITY).
                                                                                                                                       Length
                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         restrictions on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      activity and
                           -QLHI-P
                                                                                                             57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   collaboration
                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              commercial
120
                           96
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCL2_BOVIN
                                                                                                             This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-OCT-2001
16-OCT-2001
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCL2_BO
002718;
                                                                                                                                                                                                                                                                                                          <del>:</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                          ÷÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Bovine leukemia virus associated-leukemogenesis is correlated with suppression of programmed cell death and increased expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=Holstein; TISSUE=Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bos taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Reyes R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                               cleaved protein, lacking the BH4 domain, has pro-apop activity, causes the release of cytochrome c into the promoting further caspase activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN. SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                            PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     similarity).

DOMAIN: The BH4 domain is required for anti-apoptotic for interaction with RAF-1 (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
                                                                                                                                                                                                                                                                                                        PTM: Proteolytically cleaved by caspases during apoptosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FUNCTION:
                                                                                                                                                                                                                                                                                                                              similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                including
                                                                                         SWISS-PROT entry is copyright. It is produced through a collaboration sen the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FVRKTLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL~VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      regulator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 40, Created)
(Rel. 40, Last sequence up
(Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cockerell G.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Suppresses apoptosis in a variety of cell system factor-dependent lymphohematopoietic and neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bc1-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ΑÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of cell systems
                                                                                                                                                                                                                                                                  pro-apoptotic into the cyto:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               activity
                                                                                                                                                                                                                                                                  cytosol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cells.
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Best Local
                                                                                                                                                                                                         Q9JJV8;
Q9JJV8;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SITE
MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                             CRILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Apoptosis;
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                       MEDLINE-20431763; PubMed=10973819; Tomicic M.T., Christmann M., Kaina B.; "Cloning and functional analysis of cDNA encoding protein.";
                                                                                                                                                              Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS50062; BCL2_FAMILY; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
InterPro;
 Biochem. Biophys.
                                                                                                                                                  Cricetulus
                                                                                                                                                                                                                                                                                                              BCL2_CRILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGRFAMs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMART; SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMART; SM00337;
                                                                                    TISSUE=Ovary;
                                                                                                 SEQUENCE FROM N.A.
                                                                                                                              NCBI_TaxID=10030;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                               193
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                                                                                                                                                                                                                                                                                                                                                                                            GPSMRPLFDFSWL-----SLKALLSLAL 215
                                                                                                                                                                                                                                                                                                                                                                                                                            -VSTDPGFRSHWLVATLCSFGRFLKAAFFLLL 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----VCTVLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFSAGI: 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPAAAAGPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EYVHARLLRAGLSW-----SAPERASPAPG-----GRLAE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                              NWGRIVAFFEFGGVMCVESVNREMSPLVDSIALWMTEYLNRHLHTWIQDNGGWDAFVELY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPVPPVVHLTLRQAGDDfSRRYRRDfAEMSSQLHLTPfTAR----ERFATVVEELFRDGV 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PF02180
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PS01260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
64
69
83
126
177
202
34
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BH4;
                                                                                                                                                                                                                                                                                                                STANDARD;
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68
72
97
145
192
223
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25099
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23.1%;
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Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bc1-2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mitochondrion; Phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 161.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POLY-PRO.
POLY-ALA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
CLEAVAGE (BY CASPASES) (BY SIMILARITY).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
ADIDDOAF98FFF11D CRC64;
 275:899-903(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                              236
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77;
                                   the hamster Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7;
     TRANSMEM
SITE
                                                                                                                                               PROSITE;
                                                                                                                                                                               PROSITE;
                                                                                                                                                                                                                             SMART; SM00337; BCL; SMART; SM00265; BH4; TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                            EMBL; AJ271720; HSSP; Q07817; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <del>;</del>
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                                                                                                                                                                                                                                                                                             Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and caspase-3."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tomicic M.T., F
"Hamster Bcl-2
                                                    DOMAIN
                                                                   DOMAIN
                                                                                    DOMAIN
                                                                                                 DOMAIN
                                                                                                                 Apoptosis;
                                                                                                                                  PROSITE;
                                                                                                                                                                                                               PROSITE;
                                                                                                                                                                                                                                                                                 Pfam;
                                                                                                                                                                                                                                                                                                              InterPro;
   MOD_RES
                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                ierPro; IPR003093; Bcl2_BH4.
eerPro; IPR003093; Bcl2_Be4.
eerPro; IPR004725; Bcl2_reg.
m; PP00452; Bcl-2; 1.
n; PF02180; BH4; 1.
vr; SM00327.
                                                                                                                                               PS01259;
PS01260;
                                                                                                                                                              PS50062; BCL2_FAMILY;
PS01080; BH1; 1.
PS01258; BH2; 1.
PS01259; BH3; 1.
                                                                                                                                  PS50063;
Transmembrane; N 30 10 30 104 104 113 1152 1184 1199 230 64 65 70 70 70
                                                                                                                              BH4_2;
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В δð В Qy

γQ 밁

BH4\_1;

Mitochondrion; Phosphorylation.

BH4. BH3.

BH2.
POTENTIAL.
CLEAVAGE (BY CASPASE-3 AND CASPASE-9).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

bc1-2;

BCL2\_family.

```
similarity). Also interacts with APAF-1 and RAF-1 (By similarity).

-i- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.

-i- DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

-i- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A)
                                                    entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                               use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Biochem. Biophys. Res. Commun. -! - FUNCTION: Suppresses apopto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [2]
SEQUENCE FROM N.A., AND CLEAVAGE E
MEDLINE=21092839; PubMed=11181062;
                                                                                                                                                                                                                                                                             reprint proteolytically cleaved by caspases duri-
cleaved protein, lacking the BH4 domain, has
activity, causes the release of cytochrome c
promoting further caspase activity.

Figure 1: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAI BCl-\mathbf{x}(L). Heterodimerization with BAX requires intact BH1 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bcl-x(L). Heterodimerization with BAX requires intact BH1 domains, and is necessary for anti-apoptotic activity (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTION: Suppresses apoptosis in a variety of cell including factor-dependent lymphohematopoietic and
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CAB92245.1; -.
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(BH2)
(BH3)
(BH4)
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DOMAIN.
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RESULT 4
BCLX_MOUSE
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Best Local
                               Grillot D.
Ohta S., S
                                                                                                        "A novel Bcl-x isoform connected apoptosis in T cells.";
                                                                                                                                                                                                                                                                                                                                  Thompson C.B., Nunez G.;
"bCl-XL is the major bcl-x mRNA form development and its product localizes
Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCLX_MOUSE STANDARD; PRT; 233 AA. 064373; Q60657; Q60658; Q61338; 01-NOV-1997 (Rel. 35, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                               MEDLINE=95052604; PubMed=7963: Fang W., Rivard J.J., Mueller "Cloning and molecular charact
                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. (ISOFORMS X(L) STRAIN=C57BL/6; TISSUE=Brain; MEDLINE=95331139; PubMed=7607090;
                                                                                                                                                            STRAIN-C57BL/6 X CBA;
MEDLINE-98051053; Pubi
                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. (ISOFORMS X(L);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=2A4B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Apoptosis regulator Bcl-x.
BCL2L1 OR BCL2L OR BCLX.
              Grillot D.A., Gonzalez-Garcia M., Ekhterae Ohta S., Seldin M.F., Nunez G.; "Genomic organization, promoter region anal
                                                         MEDLINE=97289584; PubMed=9144489;
                                                                           SEQUENCE FROM
                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                   lymphocytes.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kamesaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus (Mouse)
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                                                                                                                                                                                                                       Immunol. 153:4388-4398(1994).
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(MAR-1995)
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    promoter region
                                                                                                                                                                                                                                                   characterization
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e EMBL/GenBank/DDBJ
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Pred. No. 4.2e-07;
                                                                                                                                                                                                                                                                 D.L.,
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                                                                                                                                                                                                                                                                                                                                                                                           Duan L.,
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 EMBL; X83574; CAA58557.1; -.
EMBL; L35048; AAA51049.1; -.
EMBL; L35048; AAA51040.1; -.
EMBL; U10102; AAA82174.1; -.
EMBL; U10101; AAA82173.1; -.
EMBL; U10100; AAA82172.1; -.
EMBL; U101279; AAC53460.1; -.
EMBL; U78031; AAB96881.1; JOIN
DOMAIN
DOMAIN
                                                                                   PROSITE;
                                                                                                               PROSITE;
                                                                                                                                           TIGRFAMS; TIGRO0865; bcl-2; PROSITE; PS50062; BCL2_FAMI
                                                                                                                                                                        SMART; SM00337; BCL; SMART; SM00265; BH4;
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                                                                     PROSITE;
                                                                                                                                                                                                    Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; BcL12_BH.
InterPro; IPR003093; Bcl12_BH4.
InterPro; IPR004725; Bcl2_reg.
                                                                                                                                                                                                                                                                                          MGD; MGI:88139;
                                                                                                                                                                                                                                                                                                         HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death. PTM: Proteolytically cleaved by caspases during apoptosis (By similarity). The cleaved protein, lacking the BH4 domain, has properly cativity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POSTNATAL TISSUES,
POSTNATAL TISSUES.
DOMAIN: The BH4 dor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             isoform promotes apoptosis.

SUBUNIT: BC1-X(L) forms heterodimers with BAX, BAK and Boshunit; BC1-X(L) forms heterodimers with BAX does not seem to similarity). Heterodimerization with BAX does not seem to required for anti-apoptotic activity (By similarity).

SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUC ENVELOPE FOR BC1-X(L). CYTOPLASMIC FOR BC1-X(DELTA-TM).

ALTERNATIVE PRODUCTS: 4 ISOFORMS; BCX-X(L) (SHOWN HERE), BC1-X(BETA) AND BC1-X(DELTA-TM); ARE PRODUCED BY ALTERNAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to it and preventing
                                                                                                               PS01080; BH1;
PS01258; BH2;
                                                                       PS50063;
                                                        Mitochondrion;
                                                                                                                                                                                                                                                                                                      1AF3
                                                                                                                                                                                                                                                                                          Bc121.
                                                                    BH4_1;
BH4_2;
                                                                                                                                           BCL2_FAMILY;
 24
100
148
195
                                                                                                                                                                                                                             Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                      JOINED.
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PACE OF THE PROPERTY OF THE PR

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J. Immunol. 158:4750-4757(1997).

-:- FUNCTION: Potent inhibitor of cell death. Inhibits activation caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by bind:
                                                           cytochrome c, from the mitochondrial membrane. The
                                                                                             the release of the caspase activator
                                                           Bc1-x(S)
                                                                                                                  ath by
by binding
Bc1-2
(ву
                                                                                                                                                                             of
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ç be

BY ALTERNATIVE PERINUCLEAR BCL-X(S),

SPLICING.
TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-Y
TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAY AND BCL-X(DELTA: THAT HAVE BEEN IN THE

B Q 밁 Qy Db Qy

QS

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B

ACTIVATED.

DEVELOPMENTAL STAGE: BCL-X(BETA)IS EXPRESSED IN BOTH EMBRYONAL AND POSTNATAL TISSUES, WHEREAS BCL-X(L) IS PREDOMINANTLY FOUND IN

pro-

entities requires a license agreement (S or send an email to license@isb-sib.ch). use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and for entities requires a license agreement (See http://www.isb-sib ween the Swiss Institute of Bioinf.
European Bioinformatics Institute. SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the Extraprean Bioinformatics Institute. There are no rest restrictions EMBL a collaboration for in no way 9

Alternative splicing; Transmembrane

SOS

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Matches
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Best Local
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VARSPLIC
VARSPLIC
                                                                                                                                                                                                                                                                                                                                    BCLX_RAT STANDARD; PRT; 233 AA. P53563; Q62678; P70614; P70613; Q62836; Q64087; Q1-CCT-1996 (Rel. 34, Created) Q1-NOV-1997 (Rel. 35, Last sequence update) Q15-JUN-2002 (Rel. 41, Last annotation update)
        SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).

STRAIN-Sprague-Dawley; TISSUE-Ovary;

MEDLINE-95129487; PubMed-7828536;

Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;

"Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulos cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels.";

Endocrinology 136:232-241(1995).
                                                                                                     Shiraiwa N., Inohara N., Okada S., Yu
"An additional form of rat Bcl-x, Bcl
unspliced RNA, promotes apoptosis in
J. Biol. Chem. 271:13258-13265(1996).
                                                                                                                                                                              TISSUE-Brain;
Wesselingh S.L., Dav:
Submitted (JUN-1995)
                                                                                                                                                                                                                                                                                                                    Apoptosis regulator Bcl-x. BCL2L1 OR BLC2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARSPLIC
                                                                                                                                                                                                                                          Michaelidis
                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
Endocrinology [5]
                                                                                                                                                                                                                                                    TISSUE-Brain;
                                                                                                                                                                                                                                                                                                          Rattus norvegicus (Rat)
                                                                                                                                            MEDLINE=96278736; PubMed=8662675;
                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                               NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                           172
                                                                                                                                                                                                                                                                                                                                                                                                                                             156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 SPTDKELVAQAKALGREYVHARLLRAGLSWS------APERA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N
                                                                                                                                                                                                                                                                                                                                                                                                                           TYLNDHLEPWIQENGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                           EFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SQSNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                               (DEC-1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -SPAPGGR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    233
                                                                                                                                                                                                                                         T.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             210
126
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A,
                                                                                                                                                                                           David G
                                                                                                                                                             (ISOFORMS X(L)
                                                                                                                                                                                                                                                            (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             226
188
233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26132
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14.1%; 22.3%;
                                                                                                                                                                                                                                6
                                                                                                                                                                                G.L.,
                                                                                                                                                                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29;
                                                                                                                                                                                Choi S., Veliuona
EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                           X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 154.5;
Pred. No. 6.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              X(DELTA-TM)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSLFSRK
-> GHDCGWCGSAGLTLQSEVTRH (IN ISOFORM BCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FSRK -> VRTTPLVCPPLACVSLLCEHP BCL-X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL
                                                                                                                                                                                                                                                                                       Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24D2AC79887E072E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GHDCGWCGSAGLTLQSEVTRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
                                                                                                             yuzaki M., Shoji S.-I.,
Bcl-xbeta, generated by a
in promyeloid cells.";
                                                                                                                                                               AND
                                                                                                                                                                                                                                                           AND X(S)).
                                                                                                                                                                                           Veliuona
                                                                                                                                                              X(BETA))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; DB 1
                                                                                                                                                                                                                                                                                        Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.
                                                                                                                                                                                                                                databases
                                                                                                                                                                                 databases
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                           Hardwick J.M.;
                                                                                                                                                                                                                                                                                                 Euteleostomi;
                                                                                                                                                                                                                                                                                         Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233;
                                                                                                                          an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISOFORM
                                                                                                                                  Ohta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              55;
                                     granulosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    114
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5;
PROSITE;
                                                                                                                                         Pfam;
                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                 EMBL;
                                                                                                                                                                                                                                                                    EMBL;
                                                                                                              SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                          PDB;
                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Morikawa K
          DOMAIN
                  DOMAIN
                                                                PROSITE;
                                                                                            PROSITE;
                                                                                                      TIGRFAMs;
                                                                                                                                  Pfam;
                                                                                                                                                             InterPro;
                           Apoptosis; Mi
3D-structure.
                                              PROSITE;
                                                        PROSITE;
                                                                                                                                                                        InterPro;
                                                                                                                                                                                InterPro;
                                                                                                                                                                                          1AF3;
                                                                                                                                                                                                  X82537;
X82537;
U10579;
U72350;
U72349;
U72349;
U34963;
S76513;
S76513;
                                                                                                                                 PF00452; Bcl-2;
PF02180; BH4; 1.
                                             PS01260;
                                                                                                                                                           IPR000712; H
                                                                                                      TIGR00865;
                                     Mitochondrion;
                                                                                                                                                                                           07-JUL-97
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; CAA57886.1; -.; CAA57887.1; -.; AAA19257.1; -.; AAB17353.1; -.

way its

AAB17352.1; -. AAC60701.1; AAA77686.1;

AAC60702.1;

ALT\_INIT.

BH3; 1. BH4\_1; BH4\_2; BH1; BH2;

Alternative splicing;

Transmembrane

24 100 148

вн4 вн3 вн1

55; bcl-2; 1.
BCL2\_FAMILY;

Bcl2\_reg. BC12\_BH4. Bc12\_BH BCL2\_family В Ş 밁 Ş B Š

οy

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cleaved protein, lacking the BH4 domain, activity (By similarity).

-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1

-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2

-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3

-i- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                        "Crystal structure of rat Bcl-xL. Imp the Bcl-2 protein family.";
J. Biol. Chem. 272:27886-27892(1997).
entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                     modified and this statement is not removed.
                                                     This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is
                                                                                                                                                                                                                                                                               -!- PTM: Proteolytically cleaved by caspases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X-RAY CRYSTALLOGRAPHY (2.5 ANGSTF MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Aritomi M., Kunishima
                                                                                                                                                                                                                                                                                                                    DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization
                                                                                                                                                                                                                                                                         The BH1 and BH2 domains are required for both neterous cell death.
with other Bc12 family members and for repression of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FUNCTION: Potent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     caspases (By similarity). Appears to regulate blocking the volatage-dependent anion channel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         to it and preventing the release of the caspase activator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                inhibitor of cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Inohara N., Ishibashi Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ANGSTROMS)
                                                                                                                                                                                                                                                               BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Implications
                   (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ath. Inhibits activation of regulate cell death by channnel (VDAC) by binding
                                                                                                                                                                     (BH1)
(BH2)
(BH3)
(BH4)
                                                                                                                                                                                                                                                                 has
                                       Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                               pro-apoptotic
                                                                                                                                                                     DOMAIN.
DOMAIN.
DOMAIN.
                     by and for
                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ohta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PERINUCLEAR
                                                                          restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to be
                                         for
                                                                                                collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                        BCL-X(S)
                                                                                              outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of
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                                                                            on
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Query Match
Best Local :
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        MEDLINE-97277291; PubMed-9115215,
MEDLINE-97277291; PubMed-9115215,
Ito T., Deng X., Carr B., May W.S. Jr.;
Bel-2 phosphorylation required for anti-apoptosis
T Biol. Chem. 272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CONFLICT
CONFLICT
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CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
TRANSMEM
VARSPLIC
VARSPLIC
                                                                                                                                                              gene homologous to the Cell 49:455-463(1987).
                                                                                                                                                                                                                                                                                                   P10417; P10418;
01-MAR-1989 (Rel. 10, Created)
01-APR-1993 (Rel. 25, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                           PHOSPHORYLATION
                                                                                                                       Eguchi Y.,
                                                                                                                              REVISIONS TO 221-222.
MEDLINE-92375724; PubMed=1508712;
                                                                                                                                                                     Negrini M., Silini E., Kozak C., Tsujimoto Y., "Molecular analysis of mbcl-2: structure and ey gene homologous to the human gene involved in 1
                                                                                                                                                                                                     MEDLINE=87187643; PubMed=3032455;
                                                                                                                                                                                                                SEQUENCE FROM N.A. (ISOFORMS STRAIN=BALB/c; TISSUE=Liver;
                                                                                                                                                                                                                                                      Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                                                   Apoptosis regulator Bcl-2.
BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                        MOUSE
                                                                                 Nucleic
                                                                                                                                                                                                                                            NCBI_TaxID=10090;
                                                                                                           Eguchi Y., Ewert D.L., Tsujimoto Y.;
"Isolation and characterization of the
                                                                                                                                                                                                                                                                                                                                                                                                                                        115
                                                                                                                                                                                                                                                                                                                                                                                                                    156
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                                                                                                   a variety
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ν
                                                                                                                                                                                                                                                                                                                                              MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                TYLNDHLEPWIQENGGW 188
                                                                                                                                                                                                                                                                                                                                                                                                                                       ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SQSNRELVV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPTDKELVAQAKALGREYVHARLLRAGLSWS-----APERA--
                                                                                                                                                                                                                                                                                                                                                                                                                   EFVRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                         variety of tissues
and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 Similarity
44; Conser
                                                                                 Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    201
233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
64
81
119
119
199
                                                                                                                                                                                                                                                                          (Mouse)
                                                                                 Res.
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                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                           BY PKC,
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12
64
81
119
144
199
201
26158
                                                                              20:4187-4192(1992)
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226
188
233
                                                                                                                                                                                                                                                       Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.1%;
22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DELSYKLSOKGYSWSOFSDVEENRTEAPEETEPERETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                                                                    172
                                                           AND MUTAGENESIS
                                                                                                 including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29;
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R -> Q (IN REF. 1).

F -> S (IN REF. 2).

A -> E (IN REF. 4).

I -> L (IN REF. 4).

A -> V (IN REF. 4).

FF -> SS (IN REF. 4).

A -> T (IN REF. 4).
                                                                                                                                                                                                                         ALPHA AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 154.5; DB Pred. No. 6.3e-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BH2.
POTENTIAL.
MISSING (IN ISOFORM BCL-x(S)).
DTFVDLYGNNAAAESRKGQERENRWFLTGMTVAGVVLLGSL
FSRK -> VRTTPLVCPPLVCLSSVEIPNCPFWSPGMVVED
                                                                                                                                                                                                                                                      Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2B62B6C63864BC8F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             > Q (IN REF. 1).
> S (IN REF. 2).
> E (IN REF. 2).
> L (IN REF. 4).
> V (IN REF. 4).
-> SS (IN REF. 4).
                                                                                                f the chicken lymphoid and
                                                                                                                                                                                                                                                                                                                                               236
                                                           Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                           SERINE
                                                                                                                                                                                                                                                      Muridae; Murinae; Mus.
                                                                                                                                                                       croce C.M.;
expression of the murine
follicular lymphoma.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFORM BCL-X(BETA))
                                                                                                  bc1-2 gene: expression
neuronal organs in
                                                           RESIDUES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                             function.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       171
                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                95
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           InterPro; IPR000712; Bc
InterPro; IPR003093; Bc
InterPro; IPR004725; Bc
InterPro; IPR004725; Bc-
Pfam; PF00452; Bc1-2; 1
Pfam; PF002480; BH4; 1.
                                                                                                                                                             PIR; B25960; TVMSB1.
PIR; E37332; E37332.
HSSP; Q07817; 1MA2.
MGD; MGI:88138; BC12.
                                                                                                                                                                                                                                                                                                      This SWI
        PROSITE;
PROSITE;
PROSITE;
PROSITE;
                                               PROSITE;
                                                                              SMART;
                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                     use by non-profit institutions as lon modified and this statement is not remove entitles requires a license agreement (s or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                             -----
                                                                    TIGRFAMS;
                                                                                                                                                                                                               EMBL;
                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---
                                                                                                                                                    InterPro; IPR002475;
                                                                                                                                                                                                                                                                      L; L31532; AAA37282.1;
L; M16506; AAA37282.1;
L; M16506; AAA37281.1;
; A25960; TVMSA1.
E; PS50062; BCL2_FAMILY; 1

3; PS01080; BH1; 1.

3; PS01280; BH2; 1.

3; PS01259; BH3; 1.

5; PS01259; BH3; 1.

6; PS01260; BH4_1; 1.

7; PS01260; BH4_1; 1.
                                                                   M00337; BCL;
M00265; BH4;
; TIGR00865;
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Bc12.

JOINED

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http://www.isb-sib.ch/announce/

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restrictions

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Usage

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Bc12\_BH. Bc12\_BH4. Bc12\_reg. BCL2\_family.

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anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A).

1- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=99069407; PubMed=9852076;
Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.;
"Reversible phosphorylation of Bcl2 following interleukin bryostatin 1 is mediated by direct interaction with protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               phosphatase 2A*.
J. Biol. Chem. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEPHOSPHORYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                are produced by alternative splicing TISSUE SPECIFICITY: Expressed in a ve DOMAIN: The BH4 domain is required fc for interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bcl-x(L). Heterodimerization with BAX requires intact domains, and is necessary for anti-apptotic activity similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitochondrial membrane, in membrane of the nuclear envelope and the endoplasmic remembrane of the nuclear envelope and the endoplasmic remembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: Forms homodimers, and heterodimers with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          including factor-dependent lymphohematopoietic and neural cell-
Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: Suppresses apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the apoptosis-activating factor (APAF-1)
SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EM
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       collaboration -
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                                                                                                                                                                                                                                                                                                                                         Q91027;
Q1-NOV-1997 (Rel. 35, Created)
P 01-NOV-1997 (Rel. 35, Last sequence update)
P 115-JUN-2002 (Rel. 41, Last annotation update)
E Apoptosis regulator R1 (XR1) (Fragment).
S Xenopus laevis (African clawed frog).
S Xenopus laevis (African clawed frog).
C Eukaryota; Metazoa; Chordata; Craniata; Vertebrace C Amphibia; Batrachia; Anura; Mesobatrachia; Pipo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _XENLA
                                                                                                                             -!- FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
-!- SUBCELLULAR LOCATION: Membrane-bound (Potential).
-!- DEVELOPMENTAL STACE: DEVELOPMENTAL REGULATION ONLY OCCURS IN BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
DOMAIN
                                    use by non-profit institutions as long modified and this statement is not removed entities requires a license agreement (See
                                                                         This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Elthe European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SITE
                                                                                                                                                                                                                                          cell-survival genes.";
Gene 158:171-179(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AR1_XENLA
                          or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                            Cruz-Reyes J.; Tata J.R.; "Cloning, characterization and expression of two Xenopus bcl-2-like
                                                                                                                                                                                                                                                                                              MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
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Phosphorylation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FTAR----GREATYVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
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22.48;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PHOSPHORYLATION (BY PKC).

DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL
GHK -> VGACLVE (IN ISOFORM BETA).
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вн3.
вн1.
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CLEAVAGE (BY CASPASES) (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata;
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                                  http://www.isb-sib.ch/announce/
                                                Usage
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; Pipidae;
                                                                           restrictions
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                                                     commercial
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Best Local 9
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                                                                                                                                                                                                                                                                                                                                                                   01-APR-1993 (Rel. 25, Created)
01-APR-1993 (Rel. 25, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
Apoptosis regulator Bcl-2.
BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                     BCL2_CH1
Q00709;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SMART;
                                                                                                  Cazals-Hatem D.L., Louie D.C., Tanaka S., Ree "Molecular cloning and DNA sequence analysis homologue of the Bel-2 oncoprotein.", Biochim. Biophys. Acta 1132:109-113(1992).
                                                                                                                                               MEDLINE=92379084; PubMed=1511008;
                                                                                                                                                               SEQUENCE FROM N.A. TISSUE=B-cell lymphoma;
                                                                                                                                                                                                                                                                                                                                             Gallus gallus (Chicken).
Eukaryota; Metazoa; Chor
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHICK
                                                                                                                                                                                                                 "Isolation and characterization of the chicken bcl-2 gene: expression in a variety of tissues including lymphoid and neuronal organs in adult and embryo.";
                                                                                                                                                                                                                                                       MEDLINE=92375724; PubMed=1508712; Eguchi Y., Ewert D.L., Tsujimoto
                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                      Gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
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PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam;
                                                                                                                                                                                                                                                                                                         NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                  Archosauria;
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                      FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FVFGAALCAESVNKEMSPLLPRIQDWMVTYLETNLRDWIQSNGGWNGFL
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rPro; IPR000712; B
rPro; IPR003093; B
rPr00452; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSAMRAAGDEFEERFRQAFSEISTQIHV----TPGTAYARFAEVAGSLFQGGVNWGRIVAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -TVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGITWGKVVSL 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RGSPDKYLTEQGWMAQSDLGSRALVEDLVRYKLCQRSL-----VPEPSG--AASCAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q07817;
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SM00265; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40;
           apoptosis-activating factor (APAF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
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228
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171
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186 B
227 P
25068 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----AKALGREYVHARLLRAGLSWSAPERASPAPGGRLAEVC--
                                                                                                                                                                                                       20:4187-4192(1992)
                                                                                                                                                                                                                                                                                                                                              Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13.9%;
23.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bcl2_BH.
Bcl2_BH4.
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Pred. No. 9.
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                                                                                                                                                                                                                                                                                                                                  Craniata; Vertebrata; Euteleostomi; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                            Tanaka S., Reed J.C.; uence analysis of cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C499D449A585F8A9 CRC64;
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EMBL; D11381; BAA01978.1;
EMBL; Z11961; CAA78018.1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use
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InterPro; IPR000712;
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        domains, and is necessary for anti-apoptotic activity similarity). Also interacts with APAF-1 and RAF-1 (By SUBCELLULAR LOCATION: Outer mitochondrial membrane, in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A37332;
S24390;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        European
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE SPECIFICITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        membrane of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced een the Swiss Institute of Bioinformatics and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            thymus. In the embryo, highly levels expressed high levels in the bursa of Fabricius.
HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT
                                                                                                                                                                            RSPTDKELVAQAKALGREYVHARLLRAGLSWSA-----PERASPAPGGRLAEVCT----
                                                                                                                                       RGYDNREIVL-----KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF00452; Bc1-2; PF02180; BH4; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                     233
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BH4_2; 1.
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BCL2_FAMILY;
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Bcl2_BH.
Bcl2_BH4
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2_BH.
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Pred. No. 9.5e
38; Mismatches
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GSAAASSVPPAGGLRP -
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V (IN REF. 2).
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                                                                                                                                                                                                                     86;
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                                                                                                                                                                                                                                                                                                            MEDLINE=97172562; PubMed=9020082;
Sattler M., Liang H., Nettesheim D.
Eberstadt M., Yoon H.S., Shuker S.B
Thompson C.B., Fesik S.W.;
"Structure of Bcl-xL-Bak peptide coregulators of apoptosis.";
Science 275:983-986(1997).
                          [7]
CLEAVAGE BY CASPASES, AND MULTULE.
MEDLINE-98118550; PubMed-9435230;
Clem R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G.,
Clem R.J., Cheng M.B., Griffin D.E., Earnshaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Boise L.H.,
Turka L.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HUMAN
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Ng S.L., Fe
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 "Modulation
Proc. Natl.
                                                                                                                                                                                                                                       Muchmore S.W.,
                                                                                                                                                                                                                                                          MEDLINE=96256675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUTAGENESIS OF GLY-138, AND HETERODIMERIZATION MEDLINE=95372373; PubMed=7644501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Apoptosis regulator Bcl-x.
BCL2L1 OR BCL2L OR BCLX.
Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1995 (Rel. 31,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q07817; Q92976;
01-FEB-1995 (Rel.
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                                                                                                                                                 Nature
                                                                                                                                                                                   "X-ray and NMR structure
                                                                                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS),
                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRUCTURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Bax-independent inhibition Nature 379:554-556(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Korsmeyer S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cheng E.H.-Y., Levine B.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-96170038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MUTAGENESIS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=93364977;
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                                                                                                                                             381:335-341(1996).
                                                                                                                                                                                                   Fesik S.W.;
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N., Ohta S
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                   cell
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 Sci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PubMed=8358789;
                                                                                                                                                                                                                                                        PubMed=8692274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=8596636;
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 death
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                                                                                                                                                                                                                    Chang
 S.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M., Poscus
Thompson C.B.;
                                                                                                                                                                                   human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of apoptosis by Bcl-XL.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ databases.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BETA)
Bcl-xL through caspase . 95:554-559(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata;
Catarrhini; Hominidae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                92:7834-7838(1995)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E.
                                                                                                                                                                                                                      В
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                                                                                                                                                                                                                                                                                                                                                    complex:
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                                                                                                                                                                                 Bcl-xL,
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on update)
                                                                                                                                                                                                                                                                                                                                                                                    Meadows R.P., Chang B.S.,
                                                                                                                                                                                                                                         Meadows
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    233
                                                                                                                                                                                                                      Thompson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X(S))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thompson C.B., Hardwick J.M.,
                                                                                                                                                                                                                                                                               AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                   an
                                                                                                                                                                                                                                                                                                                                                  recognition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   selective
                                                                                                                                                                                                                                                                             STRUCTURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Boise
                                                                                                                                                                                   inhibitor of
                                                                                                                                                                                                                                         R.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ding
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W
                                                   Ueno I
W.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     L.H.,
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                                                                                                                                                                                                                                         Harlan
                                                                                                                                                                                                                                                                                                                                                                                                         Harlan J.E.,
                 interaction.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Euteleostomi;
                                                                                                                                                                                                                      Wong
                                                                                                                                                                                                                                                                               BY NMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dimerizations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo.
                                                                                                                                                                                                                                                                                                                                                      betweer
                                                     Veliuona M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thompson
                                                                                                                                                                                   programmed
                                                                                                                                                                                                                      S.C
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E
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Pfam; PF00452; Bc1-2; 1
Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                                                                                                                                                                                                                                                       PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWI
between
                                                                                                                                                                                                                                                                               PROSITE: PSS10062; BCL2_FAMILY;
PROSITE: PS01080; BH1; 1.
PROSITE: PS01258; BH2; 1.
PROSITE: PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See
                                                                                                               VARSPLIC
VARSPLIC
                                                                                                                                                                                                                                                                                                                                        SMART; SM00265; BH4; TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PDB; 1BXL; 29-OCT-97.
PDB; 1LXL; 21-APR-97.
PDB; 1MAZ; 21-APR-97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>:</u>
                                                                          MUTAGEN
                                                                                                                                           SITE
                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                            Apoptosis; M:
3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genew;
                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENVELOPE (BY SIMILARITY).

AND BCL-X(BETA): ARE PRODUCED BY ALTERNATIVE SPLICING.

TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEYELS IN CELLS.

TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEYELS IN CELLS.

THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING

LYMPHOCYTES: IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING

LONG-LIVED POSYMITOTIC CELLS, SUCH AS ADULT BRAIN.

DOMAIN: The BH4 domain is required for both heterodimerization

with other Bcl2 family members and for repression of cell death.

PTM: Proteolytically cleaved by caspases during apoptosis. The

cleaved protein, lacking the BH4 domain, has pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EM European Bioinformatics Institute. There are no restribute non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTIVITY.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                caspases (By similarity). Appears to regulate oblocking the volatage-dependent anion channel to it and preventing the release of the caspase cytochrome c, from the mitochondrial membrane isoform promotes apoptosis.

SUBUNIT: Bcl-x(L) forms heterodimers with BAX, Heterodimerization with BAX does not seem to be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        apoptotic activity.
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Z23116; CAA80662.1;
; Z23115; CAA80661.1;
; U72398; AAB17354.1;
lBXL; 29-OCT-97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     600039;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HGNC:992; BCL2L1
                                                                                                                                                                                                                                                     PS01260; BH4_1;
PS50063; BH4_2;
                                                                                                                                                                                                                                                                                                                                                                                                           IPR003093;
IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR002475; BCL2_family. IPR000712; Bcl2_BH.
                                                                                                                                                                                                                                         Mitochondrion;
                                                                                                               86
129
180
180
210
61
126
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (By similarity). Appears to regulate cell death by the volatage-dependent anion channnel (VDAC) by binding preventing the release of the caspase activator.
                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Potent inhibitor of cell death. Inhibits activation
BH4.
BH3.
BH1.
BH2.
CLEAVAGE BY CASPASE-1.
1 CYLEAVAGE BY CASPASE-1.
233 DYFYELYCANAALSKKGOERFURWFLTGWYVAGVYLLGSL FSRK -> VRTKPLVCPFSLASGQRSPTALLLYLFLLCWVI VGDVDS (IN ISOFORM BCL-X(BETA)).
D->A: NO CLEAVAGE BY CASPASE-1 NOR BY
                                                                                                               24
100
148
195
226
61
188
233
                                                                       6
                                                                                                                                                                                                                                                                                                                                                                                                           Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                        bc1-2;
                                                                                                                                                                                                                                         Alternative
                                                                                                                                                                                                                                        splicing; Transmembrane,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BAX, BAK and Bcl-2.
to be required for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN.
DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Уď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  restrictions
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERINUCLEAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                        BCLX_PIG STANDARD
077737;
15-JUL-1999 (Rel. 38, C
15-JUL-1999 (Rel. 38, L
15-JUN-2002 (Rel. 41, L
                                                                        short-term hibernating myocardium.";

J. Mol. Cell. Cardiol. 31:147-158(1999).

-I- FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane.

-I- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).

-I- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MUTAGEN
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIG
                                                                                                                                                                                                                                                                                                                     Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MUTAGEN
MUTAGEN
                                                                                                                                                                                                                                          Bartling B., Hoffmann J., Holtz J., "Quantification of cardioprotective
                                                                                                                                                                                                                                                                                                                                                               Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. MEDLINE=99171363;
                                                                                                                                                                                                                                                                                                           NCBI_TaxID=9823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 SPTDKELVAQAKALGREYVHARLLRAGLSWS-----APERA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N
            with other Bcl2 family members and for repression of cell PTM: Proteolytically cleaved by caspases during apoptosis similarity). The cleaved protein, lacking the BH4 domain,
                                                   DOMAIN: The BH4 domain is required for the BH1 and BH2 domains are required
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYLNDHLEPWIQENGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SQSNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEGTESEMETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 22.3
44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPAPGGR-
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135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188
 activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
The cleaved protein, l
tivity (By similarity).
                                                                                                                                                                                                                                                                     PubMed=10072723;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                189
70
26049
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137
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148
156
176
189
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13.8%;
                                                                                                                                                                                                                                                                                                                                                                                          Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₩;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CASPASE-3.
FRD->VRA: NO HET
VNW->AIL: LOSS (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 150.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WD->GA: REDUCES ANTI-APOPTOTIC ACTIVITY
BY ABOUT HALF.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
G -> A (IN REF. 1; CAAB0661).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTIVITY.

G->A: NO HETERODIMERIZATION WITH BAX.
G->E: NO HETERODIMERIZATION WITH BAX.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTIVITY.
GRI->ELN: LOSS OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E09D3CDD851AE9BE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                      Schulz R., Heusch G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                               233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.4e-06;
ches 69;
                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NO HETERODIMERIZATION WITH LOSS OF ANTI-APOPTOTIC
                                                    for
                                                                                                                                                                                                                                           expression in
                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DВ
                                                                anti-apoptotic
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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Yamamoto K., Ichijo H., Korsmeyer S.J.; "BCL-2 is phosphorylated and inactivated I protein kinase pathway normally activated Mol. Cell. Biol. 19:8469-8478(1999).

-!- FUNCTION: Suppresses apoptosis in a value.
                                                                                                                                                                                                                                                                                                                                                                                                                              CLEAVAGE BY CASPASES, AND MI
MEDLING-98057466; PubMed=93
Cheng E.H.-Y., Kirsch D.G.,
Ueno K., Hardwick J.M.;
Conversion of Bcl-2 to a Ba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-94239528; PubMed-8183370;
Yin X.-M., Oltval Z.N., Korsmeyer S.J.;
"BHI and BH2 domains of Bcl-2 are required for
appotosis and heterodimerization with Bax.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tanaka S., Louie D.C., Kant J.A., Reed J. Frequent incidence of somatic mutations oncogenes of non-Hodgkin's lymphomas."; Blood 79:229-237(1992).
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                                                                                                                                                                                                                            Ruvolo P.P., Deng X., May W.S. "Phosphorylation of Bcl2 and J. Leukemia 15:515-522(2001).
                                                                                                                                                                                                                                                                                                                                                                                                            Science
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hockenbery D., Nunez G., Milliman "Bcl-2 is an inner mitochondrial m programmed cell death.";
Nature 348:334-336(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Alternative promoters and exons, of the Bcl-2-Ig fusion gene in lym
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE-88196071; Pu Seto M., Jaeger U.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tsujimoto Y., Croce C.M.;
"Analysis of the structure,
bcl-2, the gene involved in
                                                                                                                                                                                                                                                                                                                                                      REVIEW ON
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MEDLINE=92375724; PubMed=1508712;

Eguchi Y., Ewert D.L., Tsujimoto Y.;

"Isolation and characterization of the chical control of the chical cont
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                                                                                                                                            MEDLINE=20036804;
                                                                                                                                                                   PHOSPHORYLATION BY
                                                                                                                                                                                                                                                                                                                  MEDLINE=21260650;
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MEDLINE=86259760; PubMed=3523487;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             369:321-323(1994).
                                                                                                                                                                                                                                                                                                                                                                                                         278:1966-1988(1997).
                                                                                                                                                                                                                                                                                                                                                   PHOSPHORYLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Res. 20:4187-4192(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SES, AND MUTAGENESIS PubMed=9395403;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=2250705;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PubMed=2834197;
., Hockett R.D.,
                                                                                                                                         Y ASK1/JNK1.
PubMed=10567572;
                                                                                                                                                                                                                                                                                                                     PubMed=11368354;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                       a Bax-like
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                                                                                                                                                                                                                                                                                                                                                                                                                                       death
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protein
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                                                                                   N-terminal
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Pfam: PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TICRFAMS; TIGR00865; bc
PROSITE; PS50062; BCL2_
                                                                                                      InterPro;
Pfam; PFOC
                                                                                                                                                   InterPro;
InterPro;
                                                                                                                                                                                                                                                PIR;
PIR;
PIR;
                                                                                                                                                                                                                                                                                                         EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                PIR; A24428; TVHUBC.
PIR; C37332; C37332.
PIR; D37332; D37332.
                                                                                                                                                                                                                                                                                             PIR;
                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement or send an email to license@isb-sib.cl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This
                                                                                                                                                                                                                                                                                                                                                                                                                                    modified and this statement is not
                                                                                                                                                                                    MIM; 151430;
                                                                                                                                                                                                    Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  between
                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.

Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity).

PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  are produced by atternative spinon.
TISSUE SPECIFICITY: Expressed in a
DOMAIN: The BH4 domain is required
for interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   European Bioinformatics Institute.
by non-profit institutions as 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DATABASE: NAME-Atlas Genet. Cytogenet. Oncol. Haematol.;
www-"http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    promoting further caspase activity.
DISEASE: Involved in follicular lymphoma (FL)
II chronic lymphatic leukemia) by a chromosomat
t(14;18)(q32;q21) which involves Bcl2 and immu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitochondrial membrane, intra-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBUNIT: Forms homodimers, and heterodimers with BAX, Bcl-x(L). Heterodimerization with BAX requires intact
                                                                                                                                                                                                                                                                                                                         ; M13994; AAA51813.1; A; M13995; AAA51814.1; A; M14745; AAA35591.1; X06487; CAA29778.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PTM: Phosphorylation/dephosphorylation on Ser-70 regulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALTERNATIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the apoptosis-activating factor (APAF-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                release of cytochrome c from the mitochondria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Regulates cell death by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                            ; S72602; AAD14
A29409; TVHUA1
                                                                                                                                                                                                                                                                               B29409;
                                                                                                                                                                                                                 Q07817;
                                                                                                                                                                                                 HGNC:990; BCL2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ERNATIVE PRODUCTS: 2 isoforms; alpha (shown produced by alternative splicing.
                      M00265; BH4; 1.
; TIGR00865; bc1-2; 1.
PS50062; BCL2_FAMILY; 1.
                                                                                                                    ; IPR002475; I
; IPR000712; I
; IPR003093; I
; IPR004725; I
                                                                                                                                                                                                                                                                                                                                                                                                         email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                               TVHUB1
                                                                                                                                                                                                                 1MAZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              factor-dependent lymphohematopoietic and neural cells.
                                                                                                       Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the nuclear envelope and the endoplasmic
                                                                                                                   BCL2_family.
Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
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                                                                                                                                                                                                                                                                                                                                                        ALT_SEQ.
                                                                                                                                                                                                                                                                                                            ALT_SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         is required for anti-apoptotic activity
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                                                                                                                                                                                                                                                                                                                                                                                                                                    as long as its content removed. Usage by ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       y a chromosomal translocation Bcl2 and immunoglobulin gene
                                                                                                                                                                                                                                                                                                                                                                                                                      (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        variety of tissues
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DOMAIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   restrictions
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RESULT 12
BAXB_HUMAN
ID BAXB_H
AC Q07814
AC Q07814
AC 1-FEB
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DE APOPTO:
GN BAX:
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Best Local
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Q07814;
Q1-FEB-1995
Q1-FEB-1995
15-JUN-2002
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SEQUENCE
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VARSPLIC
                                                 Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUTAGEN
MUTAGEN
         SEQUENCE FROM N.A
TISSUE=B-cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VARIANT
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Mitochondrion; 1
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                                      NCBI_TaxID=9606;
                                                                      Homo sapiens
                                                                                        Apoptosis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Polymorphism; Disease
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  MEDLINE=93364978;
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                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                           EYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                           GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                             GGWTDVLKCV-VSTDPGFRSHWL-VATLCS
                                                                                                                                                                                                                                               VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR
                                                                                                                                                                                                                                  VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN
                                                                                                                                                                                                                                                                         APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GRFAT
                                                                                                                                                                                                                                                                                                               {\tt KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA}
                                                                                                                                                                                                                                                                                                                                                       46;
                                                                                                                                                                                                                                                                                                                                                      Similarity 21.
                                                                                       95 (Rel. 31, Created)
95 (Rel. 31, Last sequence up
02 (Rel. 41, Last annotation
regulator BAX, cytoplasmic:
                                                                                                                                                                                                                                                                                                                                                                                             239 AA;
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                                                                                                                                                                                                                                                                                           ------PLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA
                                                                      (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; Apoptosis; Alternative splicing; Transmembrane; Phosphorylation; Chromosomal translocation;
                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BH4_1;
BH4_2;
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  PubMed=8358790
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Primates;
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                                                                                                                                                                                                                                                                                                                                                                13.8%;
21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mutation
                                                                                                                                                                                                                                                                                                                                                                                             ME.
                                                                                                                                                                                                                                                                                                                                                      36;
                                                                                                                                                                                                                                                                                                                                                                                           W->A: NO HETERODIMERIZATION WITH BAX AND LOSS OF ANTI-APOPTOTIC ACTIVITY.

I -> F (IN REF. 4).

P -> T (IN REF. 3).

S -> R (IN REF. 3).

R -> C (IN REF. 4).

R -> C (IN REF. 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D->A:
D->A:
G->A:
                                                                                                                                                                                                                                                                                                                                                                         Score 150.5;
                                                                                                                                                                                                                                                                                                                                                                Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.

CLEAVAGE (BY CASPASE-3).

PHOSEPHORYLATION (BY PKC) (BY SIMILARITY).

DAFVELYGPSMRPLFDESWLSLKTLLSLALVGACITLGAYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOSS OF ANTI-APOPTOTIC ACTIVITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MUTATION)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /FTId-VAR_
                                                 Craniata; Vo
Catarrhini;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /FTId=VAR_000829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /FTId=VAR_000827
                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                     No. 1.5e-06;
smatches 75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABOLISHES CLEAVAGE BY CASPASE-3.
NO EFFECT ON CLEAVAGE BY CASPASE-3
NO HETERODIMERIZATION WITH BAX AND
                                                                                                            update
                                                                                                                                                                                           222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (IN NON-HODGKINS-LYMPHOMA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VGASGDVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (IN NON-HODGKINS-LYMPHOMA;
                                                                                        n update)
isoform
                                                                                                                                         218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _000828
                                                          Vertebrata;
                                                                                                                                          ₽
                                                   Hominidae;
                                                                                                                                                                                                                                                                                                                                                                         DВ
                                                                                        beta.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (IN
                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISOFORM
                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                       Length
                                                           Euteleostomi;
                                                                                                                                                                                                                                                                                                                                  --GRLAEVCT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BETA)
                                                                                                                                                                                                                                                                                                                                                      53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOMATIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOMATIC
                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                            109
                                                                                                                                                                                                                                                     169
                                                                                                                                                                                                                                                                                                                76
                                                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                      7;
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BAXA_HUMAN
ID BAXA_H
AC Q07812
PT 01-FEB
DT 01-FEB
                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                               Matches
  Q07812;
01-FEB-1995
01-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                accelerates programmed cell death.";
Cell 74:609-619(1993).
-i- FUNCTION: ACCELERATES PROGRAMMED CELL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oltvaí
"Bcl-2
                                           BAXA_HUMAN
                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                            Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no resti
                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                 SMART; SM00337; BCL; 1.
PROSITE; PS01080; BH1;
PROSITE; PS01258; BH2;
PROSITE; PS01259; BH3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00452; Bcl-2; SMART; SM00337; BCL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002475;
InterPro; IPR000712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP; Q07817;
Genew; HGNC:9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; L22474; AAA03620.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR; B47538; B47538.
                                                                                                              124 ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                                                                      13
                                                                                                                                                                    71
                                                                                                                                                                                               79
                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                    22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TISSUES.

DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BITK, BID, BAK, BAD ANI
BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR INTERACTION
WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY:
APOPTOTIC MEMBERS OF THE BCL-2 FAMILY:
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    E1B 19K PROTEIN, BCL-X(L), MCL-1 AN SUBCELLULAR LOCATION: Cytoplasmic. ALTERNATIVE PRODUCTS: THE MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HOMOLOG E1B 19K PROTEIN.
SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CYTOPLASMIC ISOFORMS, BETA, ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANTAGONIZING THE APOPTOSIS
                                                                                                                                         CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK 177
                                                                                                                                                                                                                                                 PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLGDEL 78
                                                                                                                                                                                              EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSVAAGLAVD 137
                                                                                                                                                                                                                         PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Z.N., Milliman C
heterodimerizes
                                                                                                                                                                                                                                                                               1 Similarity
46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HGNC:959; BAX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d and this statement is not removed. Usage by and for commercial s requires a license agreement (See http://www.isb-sib.ch/announce/an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                          PS50062; BCL2_ran___

PS50062; BCL2_ran___

; Alternative splicing.

59 73 BH3.

59 73 BH1.

BH1.

BH2.
                                                                                                                                                                                                                                                                                                                                                                                                   PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                    150
218 /
    (Rel.
                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Milliman C.L., Korsmeyer S.J.;
odimerizes in vivo with a conserved homolog,
programmed cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1MAZ
                                                                                                                                                                    NMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLK
                                                                                                                                                                                                                                                                                                                                    ĀΑ;
                                           STANDARD;
  31,
31,
                                                                                                                                                                                                                                                                                                                                   24220 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BCL2_family.
Bcl2_BH.
                                                                                                                                                                                                                                                                                          13.7%;
Created)
Last sequence update)
                                                                                                                                                                                                                                                                               29;
                                                                                                                                                                                                                                                                            Score 149.5;
Pred. No. 1.6e
29; Mismatches
                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REPRESSOR BCL-2 (
                                                                                                                                                                                                                                                                                                                                  F69DCD70F960192F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAMMA AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AND A1.
                                           192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ISOFORM
                                                                                                                                                                                                                                                                         ..6e-06;
72;
                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DELTA
                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                              163
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL
                                                                                                                                                                                                                                                                                                        218;
                                                                                                                                                                                                                                                                             13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a collaboration - MBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           that
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               outstation
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InterPro; IPR002475; BC
InterPro; IPR000712; BC
Pfam; PF00452; BC1-2; 1
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Meijerink J.P.P., Mensink E.J.B.M., Wang
Sloetjes A.W., de Witte T., Waksman G., I
"Hematopoietic malignancies demonstrate i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chittenden T., Flemington C., Houghton A.B., E
Elangovan B., Chinnadurai G., Lutz R.J.;
"A conserved domain in Bak, distinct from BH1
death and protein binding functions.";
EMBO J. 14:5589-5596(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-93364978; PubMed-8358790;
Oltvai Z.N., Milliman C.L., Korsm
"BCl-2 heterodimerizes in vivo wi
                                                                                                             MIM; 600040;
                                                                                                                                                                                EMBL; L22473; AAA03619.1; PIR; A47538; A47538.
                                                                                                                                                                                                                                                                         use by non-profit institu
modified and this statement
entities requires a license
                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                                                                            - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <del>-</del> <del>-</del> <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT PLASMACYTOMA GLU-11, VARIANT
EUKEMIA ARG-67, AND VARIANT BURKITT
MEDLINE=98200607; PubMed=9531611;
Meijerink J.P.P., Mensink E.J.B.M., W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        accelerates programmed Cell 74:609-619(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metaz
Mammalia; Euther
NCBI_TaxID=9606;
                                                                                                                                     Genew;
                                                                                                                                                           HSSP; Q07817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=96091131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MUTAGENESIS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE-B-cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Apoptosis regulator BAX, membrane isoform alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                    DISEASE: Defects in BAX are found in some cell lines from hematopoletic malignancies as T-cell acute lymphoblastic burkitt lymphoma, and plasmacytoma.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TISSUES DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BAK, BAI BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR INTERACT WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                            S SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no resti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: Membrane-bound. ALTERNATIVE PRODUCTS: THE MEMBRANE ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANTAGONIZING THE APOPTOSIS REPRESSOR BCL-2 OR ITS ADEMOVIRING HOMOLOG E1B 19K PROTEIN. INDUCES THE RELEASE OF CYTOCHROME ACTIVATION OF CASPASE-3, AND THEREBY APOPTOSIS.

SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS TOGETHER WITH BO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ";
91:2991-2997(1998).
FUNCTION: ACCELERATES PROGRAMMED CELL DEATH BY BINDING TO, AND FUNCTION: ACCELERATES PROGRAMMED CELL DEATH BY BINDING TO, AND FUNCTION: ACCELERATE APOPTOSIS REPRESSOR BCL-2 OR ITS ADENOVIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CYTOPLASMIC ISOFORMS, BETA, ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
                                                                                                                                     HGNC: 959;
                                                                                                                                                                                                                                                      s requires a license agreement (See an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FROM N.A
PS50062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Human).
etazoa; Chordata;
theria; Primates;
                                                                                                                  1MAZ.
BAX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AND FUNCTION OF BH3
1131; PubMed=8521816;
BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                           institutions as long
                                                                вс12_вн
                                                                                        BCL2_family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              in vivo with cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .J.B.M., Wang K., Sedlak T.W., Waksman G., Korsmeyer S.J.; demonstrate loss-of-function
                                                                                                                                                                                                                                                                                                   is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Korsmeyer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata;
Catarrhini; Hominidae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAMMA AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T-CELL ACUTE LYMPHOBLASTIC LYMPHOMA VAL-108.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DELTA
                                                                                                                                                                                                                                                                                                                           as its content
                                                                                                                                                                                                                                                                       http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                   Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ebb R.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALPHA AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOGETHER WITH BCL-2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      homolog, Bax,
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                                                                                                                                                                                                                                                                                                   bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERATED
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BAK, BAD AND INTERACTION
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                                                                                                                                                                                                                                                                                                                                                                           EMBL
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                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            leukemia,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ВУ
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Best Local
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Apoptosis;
Disease mut
                                      Vilagrasa X., Mezquita C., Mezquita J.;

**Toliferential expression of bol-2 and bol-x during chicked spermatogenesis.",

**Mol. Reprod. Dev. 47:26-29(1997).

-i- FUNCTION: DOMIANNT REGULATOR OF APOPTOTIC CELL DEATH.

-i- FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).

-i- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q07816; Q98908;
01-FEB-1995 (Rel. 31, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator Bcl-X.
Bcl2L1 OR BCLX OR BCL-X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHICK
                                                                                                                                                                                           STRAIN-Hubbard White Mountain; TI
MEDLINE-97264485; PubMed-9110311;
Vilagrasa X., Mezquita C., Mezqui
                                                                                                                                                                                                                                                                                                                             Boise L.H., Gonzalez-Garcia M., Postema C.E., I
Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as
of apoptotic cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (SHORT FORM). MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. (LONG FORM).
                                                                                                                                                                                                                                                                                                           Cell 74:597-608(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BCLX_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT
      -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Archosauria; Aves; Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13 PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
    ENVELOPE (B)
ALTERNATIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWDGLL
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59
98
98
150
EM 172
T 11
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45; Conserv
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PS01258;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PS01259;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            192 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108
                      (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLK 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BH1;
BH2;
BH3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73
118
165
192
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28.3%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29;
    ISOFORMS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 144.5; DB 1;
Pred. No. 4e-06;
9; Mismatches 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       G -> V (IN BURKITT LYMPHOMA; HOMODIMERIZATION).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCL-2 OR BCL-X(L)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi;
; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /FTId=VAR_013576.
6C0CDB0A7DEE4994 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G -> E (IN PLASMACYTOMA).
/FTId=VAR_013575.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /FTId=VAR_007809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                           TISSUE-Testis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -> R (IN T-CELL ACUTE LYMPHOBLASTIC THE TOTAL TO THE TERMINAL TO THE TERMINAL TO THE TERMINAL TO THE TERMINAL THE THE TERMINAL THE TERM
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    LONG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              162
    FORM
                                                                                                                                                                                                                                                                                                                                                                                           Ding L., Lindsten T.,
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                                                                                                                                                                                                                                                                                                                                                       dominant regulator
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(SHOWN
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                                                PERINUCLEAR
                                                                                         THE
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                                                                                                             THE LONG
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                   TIGRFAMS; TIGR00865; bcl-2; 1.
PROSITE; PS50062; BCL2_FAMILY;
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR004725; I
Pfam; PF00452; Bc1-2;
Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; Z23110; CAA80657.1;
EMBL; U26645; AAB07677.1;
PIR; 'A47537; A47537.
HSSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APOPTOTIC ACTIVITY (BY SIMILARITY).

-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS01260; BH4_1; 1. PROSITE; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                     VARSPLIC
                                                                                                                                                                                                                                                                                                   TRANSMEM
                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                112
172
                                                                          100
                                                                                                                             60
                                                                                                                                                                              21 SPTDKELVAQAKALGREYVHARLLRAGLSWSAPE---
                                                                                                                                                      N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING. TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEVELOPMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVE FUNCTION. INTACT BH1 AND BH2 DOMAINS
DHLDPWIQENGGW
                       KTLATWLRRGGW 172
                                                                         EPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVR
                                                                                                    PPAGHVVNGATVHRSSLEVHEIVRASDVRQALRDAGDEFELRYRRAFSDLTSQLHI----T
                                                                                                                                                      SSSNRELVI-----DFVSYKLSQRGHCWSELEEEDENRTDTAAEAEMDSVLNGSPSWH
                                                PGTAYQSFEQVVNELFHDGVNWGRIVAFFSFGGALCVESVDKEMRVLVGRIVSWMTTYLT
                                                                                                                             -PGG-----
                                                                                                                                                                                                        43;
                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR002475;
IPR000712;
IPR003093;
                                                                                                                                                                                                                                                                                                                                                                 Transmembrane;
                                                                                                                                                                                                                                                           229
                                                                                                                                                                                                                                                                                     82
125
176
176
206
185
                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                           AΑ;
                                                                                                                           -----RLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQS
184
                                                                                                                                                                                                                                                                                     24
96
144
191
223
229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCL2_family.
Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                           25733 MW;
                                                                                                                                                                                                                    12.9%;
22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .' .'
                                                                                                                                                                                                                                                                                                                                                                 Alternative
                                                                                                                                                                                                  Score 141.5; Ub .,
Pred. No. 9.2e-06;
Pred. No. 9.6e-06;
                                                                                                                                                                                                        30;
                                                                                                                                                                                                                                                                      ERFVDLYGNNAAAELRKGQETFNKWLLTGATVAGVLLLGSL
LSRK -> VRTALP (IN SHORT ISOFORM).
                                                                                                                                                                                                                                                                                                 POTENTIAL
                                                                                                                                                                                                                                                           A97D3A4D04C0E9DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INVOLVED
                                                                                                                                                                                                                                                                                                                                                                splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ARE
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                                                                                                                                                                                                                                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN.
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                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                        Indels
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RESULT 15
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-!- SUBCELLULAR LOCATION: Membrane-bound (Potential).
-!- SUBCELLULAR LOCATION: Membrane-bound (Potential).
-!- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN T BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AND ADOLTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                  TRANSMEM SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cruz-Reyes J., Tata J.R.;
"Cloning, characterization and expression of two Xenopus bc1-2-like cell-survival genes.";
Gene 158:171-179(1995).
-i- FUNCTION: COMFERS_STRONG PROTECTION AGAINST CELL DEATH.
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01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                 SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGREAMs; TIGR00865; bcl-2;
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                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS01080;
PROSITE; PS01258;
PROSITE; PS50062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; X82461; CAA57844.1; -. HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                    DOMAIN
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Xenopus laevis (African clawed frog)
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                                                                                                                                                                                                                                                                                                                                 poptosis;
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                                                                 114 AFFSFGRALCVESANKEMTDLLPRIVQWMVNYLEHTLQPWMQENGGW
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28; Conserv
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IPR004725; Bcl2_reg.
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BH2;
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23379 MW;
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2; Mismatches 54;
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RESULT 2 153744 gene bcl-2 protein - rat C;Species: Rattus norvegicus (Norway rat) C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Ju: C;Accession: I53744 R;Satco, T.; Irie, S.; Krajewski, S.; Reed, J.C. Gene 140, 291-292, 1994 A;Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 prote A;Reference number: I53744; MUID:94193015; PMID:8144041 A;Accession: I53744	Db 2 SQSNRELVVDFLSYKLSQKGYSWSQFSDVEENRTEAPEGTESEMETPSAINGN Qy 57SPAPGGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHI Db 55 PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI Qy 96 PLQSEPVYTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG :	man  21-Aug-1998 #text_change 16- Mildner, M.; Tschachler, E. 7-152, 1998 A encoding a novel bcl-x isof 865; pMID:9675101  22940; PIDN:AAB17354.1; PID:9	30 93.5 8.5 1203 2 155466 31 92.5 8.5 175 2 139055 32 90.5 8.3 118 2 \$79089 32 90.5 8.3 118 2 \$79089 33 88.5 8.1 411 2 \$79667 34 88 8.1 411 2 \$79667 35 85.5 7.8 257 2 \$7567 36 85.5 7.8 257 2 \$98172 37 85.5 7.8 297 2 \$98172 38 84.5 7.7 404 2 \$883561 38 84.5 7.7 526 2 \$87598 40 84.5 7.7 526 2 \$87598 41 84.5 7.7 129 2 \$186975 42 .84 7.7 1129 2 \$186975 43 82.5 7.5 255 2 \$724319 44 82.5 7.5 255 2 \$71811 45 82 7.5 552 2 \$71811  ALIGNMENTS
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RESULT 4
JC7383
B-cell lymphoma 2 protein - Chinese ham c; Speckes: Cricetulus griseus (Chinese C; Date: 17-Nov-2000 *sequence_revision C; Accession: JC7383
                                                                                                                                                                                                                                                                                                                                                                                                                                               transforming protein (bcl-2-beta) - chicken C;Species: Gallus gallus (chicken) C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 C;Accession: B37332; S35452 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 A;Title: Isolation and characterization of the chic A;Reference number: A37332; MUID:92375724; PMID:150 A;Accession: B37332
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nes 45; Conserv
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                                                                                                                                                                                                                 HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT
                                                                                                          NRHLHNWIQDNGGWVRACASLSST-----GGWLV 204
                                                                                                                                  RKTLATWLRRRGGWTDVLKCVVSTDPGFRSHWLV 192
                                                                                                                                                            AH----GRFVAVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYL
                                                                                                                                                                                    SEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFV
                                                                                                                                                                                                                                                                       RGYDNREIVL------KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS
                                                                                                                                                                                                                                                                                              RSPTDKELVAQAKALGREYVHARLLRAGLSWSA----PERASPAPGGRLAEVCT----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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52; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein
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Pred. No. 2.2e
34; Mismatches
                                                                                                                                                                                                                                                                                                                          Score 157.5;
Pred. No. 4.7e
35; Mismatches
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                                     hamster
                                                                                                                                                                                                                                           ---VLLRLGDELEQIRPSVYRNVARQLHI-PLQ
            hamster)
17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                             the chicken PMID:1508712
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ches 77;
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            08-Dec-2000
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                                                                                                                                                                                                                 51;
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R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L. Endocrinology 136, 232-241, 1995
Endocrinology 136, 232-241, 1995
A;Title: Expression of members of the bcl-2 gene family in onstitutive bcl-2 and bcl-xlong messenger ribonucleic acid A;Reference number: I53295; MUID:95129487; PMID:7828536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Gene: bcl-2
C;Superfamily: bcl transforming
C;Keywords: B-cell lymphoma; ove
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change
C;Accession: 167432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Residues: 1-236 <TOM>
A; Cross-references: GB:AJ271720
C; Comment: This protein has ant:
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Cross-references: EMBL:U34964; NID:gl C;Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Tomicic, M.T.; Christmann, M.; Kaina, B. Biochem. Biophys. Res. Commun. 275, 899-903, A;Title: Cloning and functional analysis of A;Reference number: JC7383
A;Contents: Ovary
A;Accession: JC7383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-236 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Status: preliminary; translated from GB/EMBL/DDBJ
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YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWQSLKTLLSLALVGACITLGAYL
                                                                                                                                                                           VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                   MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRRAPTPGIFSFQPESNRTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YLNRHLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
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                                         FVRKTLATWLRRRGGWTDVLKCV-VSTDPGFRSHW-----LVATLCSFGRFL
                                                                                                                            LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                    -----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR------
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                                                                                   --GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMYPLVDNIALWMTE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL: U34964; NID: g1004378; PIDN: AAA77687.1; PID: g1004379
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Pred. No. 6.5e-07;
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Pred. No. 7
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A; Residues: 1-214 <RE
A; Cross-references: E
C; Genetics:
A; Gene: bcl.x-long
C; Superfamily: bcl ti
                                                                                                                                                                                                                                                                                                                                              bcl-x long - mouse
C:Species: Mus musculus (house mouse)
C:Species: Mus musculus (house mouse)
C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
C:Accession: 149056; S52866
R:Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.
J. Immunol. 153, 4388-4398, 1994
A:Title: Cloning and molecular characterization of mouse bcl-x in B and T l;
A:Reference number: 149055; MUID:95052604; PMID:7963517
A:Accession: 149056
A:Status: preliminary; translated from GB/EMBL/DDBJ
A:Molecule type: mRNA
A:Residues: 1-233 <RES>
A:Residues: 1-233 <RES>
                                                                                                                   A;Cross-references: EMBL:U10101; NID:g506647; PIDN:AAA82173.1; R;Ramesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M. submitted to the EMBL Data Library. November 1994 A;Description: IL-5 inhibits anti-fgM-induced apoptosis in an i A;Reference number: S52866 A;Recession: S52866 A;Status: preliminary A;Residues: 1-233 <KAM>
A;Residues: 1-233 <KAM>
A;Cross-references: EMBL:X83574; NID:g695622; PIDN:CAA58557.1; C;Superfamily: bcl transforming protein
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C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
C;Accession: I49057
Q
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A;Molecule type: mRNA
A;Residues: 1-214 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W
J. Immunol. 153, 4388-4398, 1994
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLOSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA 171
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  SPTDKELVAQAKALGREYVHARLLRAGLSWS----
                                                            Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL:U10102; NID:g506649; PIDN:AAA82174.1; PID:g506650
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22.3%;
                                                            14.1%;
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                                             29;
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                                                            Score 154.5;
Pred. No. 9.
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                                                       ); DB
1.8e-07
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                                                                                                                                           PID:g695623
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C;Species: Rattus norvegicus (Norway
C;Date: 07-May-1995 #sequence_revisio
C;Accession: S51761; S51762
                                                                          RESULT
S51761
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C;Keywords: alternative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R: Negrini, M.; Silini, E.; Kozak, C.; Tsujimoto, Cell 49, 455-463, 1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
C;Accession: A25960; E37332
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A; Residues: 1-33,'E',34-220,'AL',223-236
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A; Residues: 1-236 < NEG>
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                                                        BCL-x protein - rat
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                                                                                                                                                           177
                                                                                                                                                                                             157 FVRKTLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               preliminary; nucleic acid sequence not shown;
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                                                                                                                                                                                                                                                                                                            VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
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                                                                                                                                                                                                                                                                                                                                              ----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR--
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ternative splicing; mitochondrion; transforming protein;
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                                                                                                                                                                                                                                   -GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 154.5; DB pred. No. 9.9e-07
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EMBL Data Library,

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C;Species: Gallus gallus (chicken)
C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 23-Feb-1997
C;Accession: A37332; S35453
R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A;Title: Isolation and characterization of the chicken bcl-2 gene: expression in A;Reference number: A37332; MUID:92375724; PMID:1508712
A;Accession: A37332
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A; Accession: S51761
A; Status: preliminary
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A; Residues: 1-125,189-233 <MIZ>
A; Cross-references: EMBL: X82537; NID: g607176;
A; Experimental source: embryonic; brain
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A; Residues: 1-233 <MIC>
A; Cross-references: EMBL: X82537; NID: 9607176;
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A; Residues: 1-233 <EGU>
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C; Superfamily: b
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Best Local
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                                                                                                                                                                                                            Local Similarity
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RGYDNREIVL-----KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS 59
                                                                                                                                                            RSPTDKELVAQAKALGREYVHARLLRAGLSWSA-----PERASPAPGGRLAEVCT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYLNDHLEPWIQENGGW 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SQSNQELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGN 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SPTDKELVAQAKALGREYVHARLLRAGLSWS-----APERA-----APERA
                                                   HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI 95
                                                                                                                                                                                                 48;
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                                                                                                                                                                                                            13.9%;
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                                                                                                                                                                                              Score 152.5;
Pred. No. 1.5e
98; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 153.5; DB Pred. No. 1.2e-06
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                                                                                    -VLLRLGDELEQIRPSVYRNVARQLHI-PLQ 98
                                                                                                                                                                                            1.5e-06;
ches 86;
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                                                                                                                                                                                                                               DB 2;
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                                                                                                                                                                                                                                                                                                                                                  C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change
C;Accession: I67431
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C;Keywords: alternative splicing; trans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R; Negrini, M.; Silini, E.; K
Cell 49, 455-463, 1987
A; Title: Molecular analysis
A; Reference number: A90893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transforming protein bcl-2-beta - mouse
C;Species: Mus musculus (house mouse)
C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
C;Accession: B25960
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                                                                                                                                             C; Superfamily:
                                                                                                                                                                                   A; Molecule type: mRNA
A; Residues: 1-233 <RES>
                                                                                                                                                                                                                                                                                                                R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, Endocrinology 136, 232-241, 1995
                                                                                                                                                                                                                                                                                                                                                                                                        BCL-X-Long -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Gene: BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-199 <NEG>
                                                                                                                                                                A; Cross-references:
                                                                                                                                                                                                                    A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:M16506; NID:g468335; PIDN:AAA37281.1;
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                                    21 SPTDKELVAQAKALGREYVHARLLRAGLSWS------APERA----
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                                                                                           Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FVRKTLATWLRRRGGWTDVLKCVV 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FTAR----GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR-----
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                                                                        45; Conserv
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                                                                                                                                           bcl transforming protein
                                                                        Conservative
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                                                                                                                                                            EMBL: U34963; NID: g1004376; PIDN: AAA77686.1;
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                                                                                         13.8%;
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22.1%;
-DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34;
                                                                        28;
                                                                    Score 151.5; DB 2;
Pred. No. 1.8e-06;
Pred. No. 1.8e-06;
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                                                                                                         Length 233;
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A;Status: nucleic acid sequence not shown; train A; Molecule type: mRNA
A; Residues: 1-69, 'G', 'J1-125, 189-233 <BO2>
A; Cross references: GB:L20122; NID:g623236; PII C; Genetics:
A; Gene: GDB:BCL2L
A; Cross references: GDB:228079
C; Superfamily: bcl transforming protein C; Keywords: alternative splicing; apoptosis F;l-233/Product: apoptosis regulator bcl-xL #s; F;l-125,189-233/Product: apoptosis regulator b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              apoptosis regulator bcl-xL - human N; Alternate names: bcl-2-related protein N; Contains: apoptosis regulator bcl-xS C; Species: Homo sapiens (man) C; Date: 16-Aug-1996 #sequence_revision 16 C; Accession: B47537; C47537 C47537 R; Boise, L.H.; Gonzalez-Garcia, M.; Poste
transforming protein bcl-2, splice form alpha - human C;Species: Homo sapiens (man) C;Date: 31-Dec-1988 #sequence_revision 07-Jun-1996 #text_change C;Accession: C37332; A29409; S07452; A24428; A27622; B27622 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 A;Title: Isolation and characterization of the chicken bol-2 constants.
                                                                                                                                                                                                                                                                                                                                                                                                               Qy
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Cell 74, 597-608, 1993
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A; Residues: 1-233 <BOI>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Date: 16-Aug-1996 #sequence_revision 16-Aug-1996 #text_change 16-Jul-1999
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                                                                                                                                                                                                                                                                                                                                                                                PSWHLADSPAVNGATAHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPTDKELVAQAKALGREYVHARLLRAGLSWS-----APERA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PSWHLADSPAVNGATGHSSSLDAREVLPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                    TYLNDHLEPWIQENGGW 188
                                                                                                                                                                                                                                                         EFVRKTLATWLRRRGGW 172
                                                                                                                                                                                                                                                                                                  --- TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gonzalez-Garcia, M.; Postema,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ·SPAPGGR----
                                                                                                                                                                                                                                                                                                                                                                                                                        SPAPGGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GB:L20121; NID:g510900;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   apoptosis regulator
                                                                                                                                                                                                                                                                                                                                                                                                                                                               -DFLSYKLSQKGYSWSQFSDVEENRTEAPEGTESEMETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.8%; 22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 150.5;
Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                        -LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         functions as a dominant regulator of apoptotic; PMID:8358789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #status predicted <MAT>
r bcl-xS #status predict
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIDN:CAA80662.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIDN:CAA80661.1; PID:g51090:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C.E.; Ding, L.; Lindsten, T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ).3e-06;
nes 69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   predicted
  gene:
                                                                                15-Oct-1999
  expression
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <MA2>
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      RESULT 15
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Cell 47, 19-28, 1986
A;Title: Cloning and structural analysis of cDNAs for bcl-2
A;Reference number: A24428; MUID:87002488; PMID:2875799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Molecule type: mRNA
A;Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A;Residues: 6B:M13994; NID:g179366; PIDN:AAA51813.1;
A;Cross-references: GB:M13994; NID:g179366; PIDN:AAA51813.1;
A;Note: this sequence has been corrected in reference A37332
R;Seto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett
EMBO J. 7, 123-131, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A;Title: Analysis of the structure, transcripts, and protein
A;Reference number: A29409; MUID:86259760; PMID:3523487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Reference number: A; Accession: C37332
                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Superfamil
C;Keywords:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: DNA
A;Residues: 1-6,'S',8-58,'T',60-128,'C',130-239 <HUA2>
A;Note: the sequence was determined from the germline c;Comment: Constitutive expression of BCL2 following t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: mRNA
A; Residues: 1-239 < SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Title: Alternative promoters and exons, (A; Reference number: S02452; MUID:88196071;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: A29409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-239 <EGU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Description: blocks apoptosis C; Superfamily: bcl transforming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Map position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-58, 'T', 60-239 <HUA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Title: Consequences of the t(14;18) chromosomal translocation A; Reference number: A27622; MUID:88217344; PMID:3285301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 1-58,'T',60-116,'R',118-239 <CLE>
A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1;
R;Hua, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: mRNA
A; Residues: 1-58, 'T',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Cleary, M.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession: S02452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R; Tsujimoto, Y.; Croce, C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Note: this report is a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Gene: GDB: BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: B27622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: A27622
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Function:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genetics
                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                       133
193
                                                                                                                                                                               77
                                                                                                                                                                                                                                                                  17
                                                                                                                                                                                                                                                                                                              37 EYVHARLLRAGLSW-----SAPERASPAPG------
GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                         GGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
                                                                                     VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN
                                                                                                                                 VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169
                                                                                                                                                                             APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GRFAT
                                                                                                                                                                                                                                                                    KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                 alternative
                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rn, S.; Jensen,
2, 263-275, 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ces: GDB:119031; OMIM:151430
18q21.3-18q21.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Smith, S.D.;
                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <SET>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           acid sequence not shown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A37332;
                                                                                                                                                                                                                                                                                                                                                                                                                                             splicing; apoptosis; B-cell lymphoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          correction
                                                                                                                                                                                                                                                                                                                                                                              13.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUID:92375724;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sklar,
                                                                                                                                                                                                                    VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109
                                                                                                                                                                                                                                                                                                                                                            36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        in hematopoietic
                                                                                                                                                                                                                                                                                                                                                                              Score 150.5;
Pred. No. 2.3
                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     somatic mutation; PMID:2834197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PMID:1508712
                                                                                                                                                                                                                                                                                                                                                   2.3e-06;
75;
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                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e gene
t(14:18) chromosomal translocati
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                                                                                                                                                                                                                                                                                                                -----GRLAEVCT--
                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                            Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       products of bcl-2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PID:g179371
Wright, J.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PID:g179367
                                                                                                                                                                                                                                                                                                                                                                                                                                               follicular lymphoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S.; Goldman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          deregulation
                                                                                                                                                                                                                                                                                                                                                          53;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a hybrid bcl-2/immuno
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                                                                                       192
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B47538
bcl-2-associated protein x, beta splice form - human
bcl-2-associated protein x beta splice form - human
N;Alternate names: BAX; programmed cell death membrane protein x beta
C;Species: Homo sapiens (man)
C;Species: 03-May-1994 #sequence_revision 03-May-1994 #text_change 17-Nov-2000
Search completed: April 29, 2003, 11:26:33 Job time: 14.3473 secs
                                                                                                                                            Db
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A;Map position: 19q13.3-19q13.4
C;Superfamily: bot transforming protein
C;Keywords: alternative splicing; blocked amino end; cytosol; heterodimer; homodimer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Gene: GDB:BAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \;Molecule type: mRNA
\;Residues: 1-218 <0LT>
\;Cross-references: GB:L22474; NID:g388167; PIDN:AAA03620.1; PID:g388168
\;Note: the amino end of the mature protein is blocked
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 13.7%; Score 149.5; DB 2; Length 218; Best Local Similarity 28.8%; Pred. No. 2.6e-06; Matches 46; Conservative 29; Mismatches 72; Indels 13; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oltvai, 2.N.; Milliman, C.L.; Korsmeyer, S.J.
11 74, 609-619, 1993
Title: Bol-2 heterodimerizes in vivo with a conserved homolog, Bax, that accelerates
Reference number: A47538; MUID:93364978; PMID:8358790
                                                                                                                                        124 ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK 163
                                                                                                                                                                                                         138 CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK 177
                                                                                                                                                                                                                                                                                                                                                                                                            13 PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                       22 PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLGDEL 78
                                                                                                                                                                                                                                                                          71 DS-----NMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLK 123
                                                                                                                                                                                                                                                                                                                                       EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSVAAGLAVD 137
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Result
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Maximum DB seq length: 2000000000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence:
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Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
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                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to be score greater than or equal to the score of the result being and is derived by analysis of the total score distribution.
  244.5
234
159
                                                                                                  1052
839.5
828.5
                                                                                                                                                                                                                         Score
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67)
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1094
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1: /SIDS2/gcgdata/
2: /SIDS2/gcgdata/
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/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991_DAT:*
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                                                          170
176
134
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    ID
                  AAY14153
AABY14144
AABY14154
AAY14154
AAY14156
AAB58949
AAB85665
AAB8564401
ABB63760
AAW48312
                                                                                                                                                                                                                                                                                   SUMMARIES
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872.393 Million cell updates/sec
                  Breast and ovarian Human Bcl-2-like p Drosophila melanog Drosophila melanog
                                                                                                                                                                                                                    Description
                                                                                                                                       Rat Bok protein se
Human Bok protein
Human ORFX ORF1208
                                                                                                  Rat Bok protein se
Human Bok protein
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•		٠	٠	٠	•	13.8	٠	•	•	•		13.8	٠	13.8		•			13.9		13.9	•	14.1	14.1	14.1	٠	14.1	•			14.2	14.3	14.3	14.4
w	ω	ω	ω	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	Ъ	9	0	0	σ	σ	ω	N	N	ω	239	9	G
													17	16	16					22	17	18							20	17		22	22	22
AAY83223	AAW31530	AAW05821	AAR68887	AAY21120	ABB05227	ABB75986	AAB74129	AAG64035	AAE08573	AAW87812	AAW94345	AAW40217	AAW01018	AAR71404	AAR70331	AAR42312	AAP80987	AAY69203	AAG64038	AAG64036	AAW02383	AAW10688	AAG64037	AAU76554	AAB35131	AAB74128	AAW87811	AAB73303	AAW94347	AAW01020	AAB73304	AAB50537	AAB48288	AAU00222
Bcl-x polypeptide.	Human anti-apoptot	Bcl-XL protein. H	Human thymus BCL-X	Human bcl2 proto-o	Human D34A caspase	Protein sequence.	Human bcl-2alpha.	Human Bcl-2 protei	Human Bcl-2 protei	1-2-alp	Human Bcl-2 wild-t	bc1-2		Human bcl-2 alpha	pro	Bcl-2 oncogene pro	Sequence of bcl-2-	S	N	Humán Bcl-2 protei	N	2	Human Bcl-2 protei	•	1-2.	1-2.	A murine Bcl-2 pro	Rat wild-type Bcl-	Human Bcl-2 mutant	Apoptosis-blocking	Mutant rat Bcl-xL	ν	L-2	LEn-Bcl-XL apoptos

## ALIGNMENTS

Rat Bok protein sequence. 27-JUL-1999 (first entry) AAY14153 standard; Protein;

213 AA.

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RESULT 1
AAX14153
ID AAX1
XX AAX1
XX AAX1
DT 27-J
XX Bok
KW PRO-
.KW PRO-
.KW PRO-
.KW PRO-
.KW PO-
.KW PI HSU
.KX WPI
.DR WPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma: cancer therax...
                                                   N-PSDB; AAX61103
                                                                                             WPI; 1999-327356/27
                                                                                                                                                                                                     Hsu SY,
                                                                                                                                                                                                                                                                                                                                                                                                          07-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-MAY-1999.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rattus rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       proliferative disorder; rat.
                                                                                                                                                                                                                                                                                                  (STRD ) UNIV LELAND STANFORD JUNIOR
                                                                                                                                                                                                     Hsueh AJW;
                                                                                                                                                                                                                                                                                                                                                                                                          97US-0064943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US23523
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BCL-x gamma

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RESULT 2
AAY14155
ID AAY1
XX AAY1
AC AAY1
XX BOK
KW BOK
KW Pro--
KW repr
KW pro-1
XW Pro-1
XW Pro-1
XW Pro-1
XW Pro-1
XW W0999
XX W0999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein, of the invention. Coding sequences for Box or Brill variants of CC pro-apoptotic Box-related protein can be introduced into cell populations CC to upregulate expression of the proteins in order to induce apoptosis in CC the cell population. This is useful for treatment of diseases where there can ovarian carcinomas, endometriosis, squamous and glandular epithelial CC carcinomas of the cervix. Cell killing induced by Box can be suppressed CC by co-expression with selective anti-apoptotic Bcl-2 proteins. The Box CC protein can be used to elucidate apoptosis mechanisms in reproductive and CC other tissues, and provide a means for manipulating apoptosis. The Box CC protein and transgenic animal are also useful for identifying ligands or CC substrates. Modulation of the gene activity in vivo is useful for CC prophylaxis and therapy of, e.g. cancer and other proliferative CC disorders. Box genes are also useful for identification of cell type based on expression. Identification of Box as a new pro-apoptotic protein CC with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                          pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;
reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;
ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                     07-NOV-1997;
                                                                                                                                  WO9924453-A1
                                                        04-NOV-1998;
                                                                                             20-may-1999
                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                             proliferative
                                                                                                                                                                                                                                                                                     Bok protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                               27-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                       AAY14155 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEYLRRSSYFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGRLAEVCTYLLKLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Page
                                                                                                                                                                                                                                                                                                                        protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                               Bcl-2-related ovarian killer; BH3i variant;
                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                             disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   is a mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        53-54; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                     97US-0064943
                                                        98WO-US23523.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                       213
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1094; DB 20; Pred. No. 3.6e-111;
                                                                                                                                                                                                                                                                                                                                                                                                                                       A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                   endometriosis;
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GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT

120

0

GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120

WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV

WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV

180

RESULT 3 AAB41444

AAB41444 standard; Protein;

213

AA

δõ Вb δÃ В QУ

STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 213

STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER

213

밁

181 181 121 121 61 61

Human ORFX ORF1208 polypeptide sequence

SEQ ID NO:2416

08-FEB-2001

(first entry)

antianaemic; gene therapy; cancer; proliferative disorder; hypertension; neurodegenerative disorder; osteoarthritis; graft vs host disease; cardiovascular disease; diabetes mellitus; hypothyroidism: SCID: AIDS:

hypotensive; dermatological; immunosuppressive; antiinflammatory, antiviral; antibacterial; antifungal; antirheumatic; antithyroid;

Human; open reading frame; ORFX; detection; cytostatic; hepatotropic; vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant; immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic;

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Qy
                                                                                                                                                                                                                             This sequence is a mammalian Bok (BC1-2-related ovarian killer)
C protein, of the invention. Coding sequences for Bok or BH3i variants of
C protein, of the invention. Coding sequences for Bok or BH3i variants of
C protein by the protein can be introduced into cell populations
C to upregulate expression of the proteins in order to induce apoptosis in
C the cell population. This is useful for treatment of diseases where there
C is hyperproliferation of reproductive tissue, e.g. uterine, testicular
C and ovarian carcinomas, endometriosis, squamous and glandular epithelial
C carcinomas of the cervix. Cell killing induced by Bok can be suppressed
C by co-expression with selective anti-apoptotic Bc1-2 proteins. The Bok
C protein can be used to elucidate apoptosis mechanisms in reproductive and
C other tissues, and provide a means for manipulating apoptosis. The Bok
C protein and transgenic animal are also useful for identifying ligands or
C substrates. Modulation of the gene-activity in vivo is useful for
C disorders. Bok genes are also useful for identification of cell type
C based on expression. Identification of Bok as a new pro-apoptotic protein
                                                                              Matches
                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mammalian
                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (STRD ) UNIV LELAND STANFORD JUNIOR
                                                                                                                                                                                            facilitates elucidation of apoptosis mechanisms
                                                                                                   Local
wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2;
                                                                                210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and its related gene
                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Page 55-56; 62pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bok (Bcl-2-related ovarian killer), a pro-apoptotic
                                                                                                                                                           213 AA;
                                                                              Conservative
                                                                                               98.4%;
98.6%;
                                                                              0;
                                                                          Score 1076; DB 20;
Pred. No. 3.3e-109;
0; Mismatches 3;
                                                                                                               Length
                                                                              Indels
                                                                                                                    213;
                                                                            0;
                                                                          Gaps
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                                                                                                                                                                                                            δÃ
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02-APR-1999;
05-APR-1999;
30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                nucleic acids can be used to express ORFX proteins in gene therapy vectors. The proteins and nucleic acids may be used to treat cancers, proliferative disorders, neurodegenerative disorders, osteoarthritis, graft vs host disease, cardiovascular disease, diabetes mellitus, thypertension, hypothyroidism, cholesterol ester storage, systemic lupus erythematosus, severe combined immunodeficiency (SCID), AIDS, viral, bacterial or fungal infection, malaria, autoimmune disorders, asthma,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          antipsoriatic; antiparkinsonian; nootropic; neuroprotective; osteopathic; anticonvulsant; antiarthritic; immunosuppressant; immunostimulant; cardiant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic; antithyroid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating pathological conditions associated with an ORFX-associated disorder. The
                                                                                                                                                                                                                                                                                                                                                              allergies, aplastic anaemia, burns, wounds, bone and cartilage on nocturnal haemoglobinuria, antiinflammatory disease; to enhance coagulation; to inhibit thrombosis; and as a contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel nucleic acids and peptides derived from open reading frame useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shimkets RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthm allergy; aplastic namemia; nocturnal haemoglobinuria; burn; wound; bone damage; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31-MAR-2000; 2000WO-US08621
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (CURA-) CURAGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   thrombosis;
                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                              1 MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                      WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                      GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Page 1750-1751; 5507pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; 99US-0127607.
; 99US-0127636.
; 99US-0127728.
; 2000US-0540763.
                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   contraceptive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Leach M;
                                                                                                                                                                                                                                                                                                                            A
                                                                                                                                                                                                                                                                      96.2%;
96.2%;
                                                                                                                                                                                                                                                     2;
                                                                                                                                                                                                                                                                      Score 1052;
Pred. No. 1
                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                       1.4e-106;
hes 6;
                                                                                                                                                                                                                                                                                       DB 21;
                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                       Indels
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                                                                                                                                                                                                                                                                                        213;
                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                               damage
                                                                                                                                                                                                                                                   Gaps
                                                                       180
                                                                                                          120
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Ş 멍 Qy

61 GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT

120

60

1;

1 MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP

MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP

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밁
  Matches
                              Best Local
                                                 Query Match
                                                                                                                                                                                                                                                                                                                                   This sequence is a mammalian Bok (BCl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein said transfer and amounts after the second context of the cervix of the cervix of the cervix of the cervix of the second context of the cervix 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bok protein; Bcl-2-related ovarian killer; BH31 variant; endometriosi pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 2; Page 54-55; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mammalian Bok (Bcl-2-related ovarian protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   07-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY14154 standard; Protein;
                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1999-327356/27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20-MAY-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rat Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-JUL-1999
                                                                                                                                                            facilitates
                                                                                                                                                                                  with wide tissue distribution and
                                                                                                                                                                                                             based on expression. Identification of Bok as a new pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (STRD ) UNIV LELAND
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                                                                                                        170
                                                                                                                                                            elucidation
Conservative
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                                                                                                        AΑ;
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                           76.7%;
79.3%;
                                                                                                                                                            of
                                                                                                                                                         apoptosis
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  0,
                           Score 839.5; DB 2
Pred. No. 1.7e-83;
  Mismatches
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                                                                                                                                                                                  heterodimerisation properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     213
                                                    Length
  43;
Gaps
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RESULT 5
AAY14156
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                 Query Match
                                                                                                        is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                       This sequence is a mammalian Bok (BCl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH3i variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ното
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY14156 standard;
                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                          Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                       protein and its
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-NOV-1998;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy; proliferative disorder; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                       Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (STRD ) UNIV LELAND
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAX61106
                                                                                                                                                                                                                                                                                                                                                                                                     Page 57-58; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hsueh AJW;
                                                                  170
                                                                                                 elucidation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                  Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0064943
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANFORD JUNIOR
                  75.7%;
78.4%;
                                                                                            of apoptosis mechanisms.
                                 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                  828.5;
5;
2.7e-82;
3;
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                                 DB 20;
                               Length 170;
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Matches

Local Similarity

Conservative

Mismatches

Indels

43;

Gaps

No.

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RESULT 6
AAB58949
ID AAB5
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                              invention. The breast and ovarian cancer associated DNA, protein, agonist or antagonist sequences exhibit cytostatic; immunosuppressive; nootropic; neuroprotective; antiviral; antiallergic; hepatotropic;
antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antifugal; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, particularly breast and ovarian cancer. The nucleic acid sequences,
                                                                                                                                 Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAB58711 - AAB59128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention are sequences AAF22032 - AAF22040 and AAB59129 which are used in the
                                                                                                                                                                                                                              Claim 11;
                                                                                                                                                                                                                                                                disorders
                                                                                                                                                                                                                                                                            New human breast and ovarian cancer associated gene sequences and polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-MAR-2000; 2000WO-US05881.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Addison's disease; allergy; autoimmune haemolytic anaemia; autoimmune thyroiditis; diabetes mellitus; Crohn's disease; multiple sclerosis; rhemmatoid arthritis; ulcerative colitic cardiovascular disorder; wound healing; neurological diseas;
                                                                                                                                                                                                                                                                                                                                                    N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200055173-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nootrop10; neurpprocedure, antidiabetic; antinflammatory; antidiabetic; antinflammatory; antidiabetic; cardiant; immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human; breast cancer; ovarian cancer; cytostatic;
nootropic; neurpprotective; antiviral; antiallerg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Breast and ovarian cancer associated antigen protein sequence SEQ
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                                                                                                                                                                                                                                                                                                                                                                                                     Rosen CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                     (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                      isolation and characterisation of the DNA and protein sequences of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         138
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                                                                                                                                                                                                                                                                                                                                                  2000-611515/58
)B; AAF21852.
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                                                                                                                                                                                                                            Page 1103; 1299pp; English.
                                                                                                                                                                                                                                                            and neurological diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0124270
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disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hepatotropic;
                                                                                                                                                                                                                                                                                  cardiovascular
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The invention provides nucleic acid molecules (NAMI) encoding 4 human Bcl-2-like polypeptides (PEPI). The NAMI and BEPI may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate Bcl-2-like polypeptides' expression. The NAMI may be used to produce the soluble Bcl-2-like polypeptides by standard recombinant methodolgy. The polypeptides may also be used as antigens in the production of antibodies against Bcl-2 and in assays to identify modulators of Bcl-2 expression and activity. The anti-Bcl-2 antibodies and antagonists may be used to down regulate expression and activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    allergies, autoimmune haemolytic anaemia, autoimmune thyroiditis, diabetes mellitus, Crohn's disease, multiple sclerosis, rheumatoid arthritis and ulcerative colitis; cardiovascular disorders such as myocardial ischaemias; wound healing; neurological diseases such as
                                                                                                                                                                                                                                                                      Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-2000; 2000US-0179487
07-FEB-2000; 2000US-0180697
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human Bcl-2-like polypeptide
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                                                                                                                                                                                                                                                                                                                    preventing,
                                                                                                                                                                                                                                                                                                                                          Nucleic acids encoding human Bcl-2-like polypeptides, useful
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-OCT-2001
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                                                                                                                                                                                     Disclosure; SEQ ID NO 19995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         disorders (a full list of disorders is given in the specification). present sequence represents a human Bc1-2-like polypeptide.
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)B; ABL08504.
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                                                                                                                                                                                                                                                                           reagent for detecting 1000 or
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The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from prosophila. The invent useful in developmental biology and in elucidating cell signalling cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLIG176-ABLJ0511), expressed DNA sequences (ABLIG175) and the encoded proteins

acid detection reagent

invention

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RESULT 9
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Matches 56
specification, but was obtained in electronic format directly from at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                      capable of detecting 1000 or more genes from Drosophila. The invent useful in developmental biology and in elucidating cell signalling cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA processed DNA pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                         The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                                                                                                                                                       Disclosure; SEQ ID NO 18072;
                                                                                                                                                                                                                                                                                                                                    New isolated nucleic a
genes from Drosophila
interactions -
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Pred. No. 1.3e
27; Mismatches
                                                                                                                                                                                                                                                                                     21pp + Sequence Listing; English
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                                                                                                                                                                                                                                                                                                                                                   acute necrotising haemorrhagic encephalopathy; anaemia; diopathic bilateral progressive sensorineural hearing loss; thrombocytopenia; polychondritis; Wegener's granulomatosis; chronic active hepatitis; Stevens-Johnson syndrome; sarcoidosis; idiopathic sprue; lichen planus; Graves ophthalmopathy; primary biliary cirrhosis; uveitis posterior; lung fibrosis; reticular dysgenesis; agammaglobulinaemia, hypogammaglobulinaemia; wiskott-Aldrich syndrome; ataxia telangiectasia; DiGeorge syndrome; bloom syndrome; Fanconi anaemia; AIDS; therapy; diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bcl-x gamma; mouse; apoptosis; T cell receptor; immunodeficiency; autoimmune disorder; graft-versus-host disease; diabetes mellitus arthritis; multiple sclerosis; myasthenia gravis; dermatitis; systemic lupus erythematosus; autoimmune thyroiditis; allergy; psoriasis; Sjogren's Syndrome; alopecia areata; Crohn's disease; aphthous ulcer; Iritis; conjunctivitis; keratoconjunctivitis;
               BCL-x
                                         N-PSDB;
                                                                                                                                                                                                                                                                                                                           Mus musculus
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                                                                                Cantor H,
                                                                                                                                     02-AUG-1996;
                                                                                                                                                                                          12-FEB-1998
                                                                                                                                                                                                                    WO9805777-A2
                                                                                                                                                                                                                                                           Domain
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DB; AAV17638.
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               gamma,
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  resistance
                                                                                Weber GF,
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                                                                                                                                                                                                                                                                      "gamma domain"
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             the BCL-x
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               family
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.6e-17;
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             of
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 apoptosis,
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RESULT 11
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BCL-x gamma activity can be upmodulated, e.g. by gene therapy, to ameliorate e.g. severe combined immunodeficiency, adenosine deaminase deficiency, purine nucleoside phosphorylase deficiency, MHC class II deficiency, reticular dysgenesis, x-linked agammaglobulinaemia, x-linked hypogammaglobulinaemia, Ig deficiency with increased IgM, Ig heavy chain-gene deletions, k-chain deficiency IgA deficiency, selective deficiency of IgG subclass, common variable immunodeficiency, transient hypogammaglobulinaemia of infancy, Wiskott-Aldrich syndrome, ataxia telangiectasia, Diceorge syndrome, Bloom syndrome, Fanconi anaemia, and Down syndrome-related immunodeficiency, as well as other syndromes associated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     autoimmune uveitis, allergic encephalomyelitis, acute necrotising haemorrhagic encephalopathy, idiopathic bilateral progressive sensorineural hearing loss, aplastic anaemia, pure red cell anaemia, idiopathic thrombocytopenia, polychondritis, Wegener's granulomatosis, chronic active hepatitis, Stevens-Johnson syndrome, idiopathic sprue, ithough the polychondritis, wegener's granulomatosis, chronic active hepatitis, Stevens-Johnson syndrome, idiopathic sprue, ithough the polychondric sprue, incompanies and the polychondric sprue, incompanies and the polychondric sprue, idiopathic sprue, incompanies and incompanies an
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        with resistance to apoptosis. BCL-x gamma polypeptides can be expressed in host cells and used to screen for modulator compounds BCL-x gamma activity can be down-modulated in order to ameliorate an autoimmune disorder such as graft-versus-host disease, cases of transplantation, and autoimmune diseases e.g. diabetes mellitus, transplantation, and autoimmune diseases e.g. diabetes mellitus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      immunodeficiency and immunodeficiencies resulting from other causes, such as HIV disease and AIDS. Additionally, it may be desirable to upregulate BCL-x gamma activity to increase T cell survival in the case of other disorders, e.g. cellular responses to tumours, or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                erythematosus, autoimmune thyroiditis, dermatitis, psoriasis, Sjogren's syndrome, alopecia areata, allergic responses to
                                             AAU00222 standard; Protein; 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      develop products for treating autoimmune disorders immunodeficiencies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     arthritis, multiple sclerosis, myasthenia gravis, systemic lupus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (see AAV17638)
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                                                                                                                                                                                                                                                                                              172 TYLNDHLEPWIQENGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET 223
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21 SPTDKELVAQAKALGREYVHARLLRAGLSWS------APERA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               is amino acid sequence comprises mouse BCL-x gamma, a novel oform of the BCL-x family that has a novel C-terminal gamma oform of the sequence was deduced from an isolated CDNA clone main. The sequence was deduced from an isolated CDNA clone ee AAV17638) from a thymus cDNA library. n ankyrin domain and where the compression of the comp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SQSNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                                        EFVRKTLATWLRRRGGW-----TDVLKCVVSTDPGFRSH-----WLVAT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         235
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22.3%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 159; DB 19;
Pred. No. 5.2e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 235;
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the fusion protein to the target cell and the Bcl-XL domain, which modifies an apoptotic response of the target cell. The fusion protein is useful for modifying (inhibiting or enhancing) apoptosis in a target cell, such as neuron, lymphocyte, cancer, neoplasm, macrophage, epithelial, stem, tumour or hyper-proliferative cell or an adipocyte. It is also useful for reducing apoptosis in a subject after transient ischaemic neuronal injury, especially spinal cord injury. The fusion protein may be used to treat various diseases and injury conditions through inhibition or enhancement of apoptotic cellular response, including neurodegenerative disorders such as Alzheimer's disease, Huntington's disease, spinal muscular atrophy, stroke episodes and unregulated cell growth as in tumours and various cancers. The apoptosis-modifying fusion protein can be delivered effectively throughout the body and targeted to selective tissue and cells.
                                                                                                                                                                                                                                                          The sequence represents the amino acid sequence of LFn-Bcl-XL apoptosis-modifying fusion protein comprising anthrax lethal factor (LF) sequence fused to Bcl-XL. The functional apoptosis-modifying fusion protein is capable of binding a target cell and integrating into or crossing a cellular membrane of the target cell. The apoptosis-modifying fusion protein comprises at least two domains: the DTR domain, which targets
                                                                                                                                                                                                                                                                                                                                                                            Claim 4; Page 64-65; 65pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                           Novel fusion protein for modifying apoptosis in target cell and reducing apoptosis after transient ischaemic neuronal injury, h domains which targets protein to a cell and modifies apoptotic:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Region
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Youle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-AUG-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEPT HEALTH & HUMAN SERVICES
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      apoptosis-modifying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
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21..276
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Collier RJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .276 ce= "Anthrax lethal factor amino acids 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "6x histidine tag"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Bcl-XL amino acids 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fusion
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                                                                                                                                                                                                                                                                                                                                                                                                                                              has two
                                                                                                                                                                                                                                                                                                                                                                                                                           response
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Query Match
Best Local Similarity
Matches 47; Conserv

Conservative

14.4%; Score 158; DB 22; 21.8%; Pred. No. 1.7e-08; Live 33; Mismatches 88;

Length 485; Indels

48;

Gaps

4

Sequence

485

AA;

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KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHTAASRDPVARTSPLQTPA

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RESULT 12
AAB48288
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                                   Query Match
Best Local S
Matches 47
                                                                                                                                            The invention relates to methods of altering the polypeptide levels in a cell, using proteins selected from S-phase kinase associated proteins 1 and 2 (SKP1, SKP2), SKP2-like proteins (ZF) and CUL-1 (a member of the cullin/ CDC53 family of proteins). The method is useful for altering the level of p27, cyclin E, Max, Mad, c-Myc, MDM2, p53, Bax, Bad or Bcl-2 polypeptide in a cell. SKP2 and SKP2-like protein levels are useful for
                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S-phase kinase associated protein; CUL-1; cullin; CDC53; p27; cyclin!
                                                                                                                                                                                                                                       Claim 5; Page 104-108; 162pp; English.
                                                                                                                                                                                                                                                              Modulating polypeptide levels in a cell, diagnosing and treating tumor, involves altering levels of proteins such as S-phase kinase associated proteins 1, 2 and cullin/CDC53 proteins -
                                                                                                                                                                                                                                                                                                                    N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human BCL-2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB48288 standard;
                                                                                                             treating
                                                                                                                                       detecting tumours, and in monitoring tumor
                                                                                                                                                                                                                                                                                                                                                                                                        04-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                05-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200075184-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bcl-2; tumour; cytostatic
                                                                                                                       modulate interactions between SKP and target proteins are useful for
          EYVHARLLRAGLSW----SAPERASPAPG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ESVDKEMQVLVSRIAAWMATYLNDHLEPWIQENGGW 464
                                                                                                                                                                                                                                                                                                                              2001-061703/07
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EFELRYRRAFSDLTSQLHI - - - TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EAPEGTESEMETPSAINGNPSWHLADSPAVNGATAHSSSLDAREVIPMAAVKQALREAGD
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                                                Similarity
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                                                                                                              tumours.
                                                                                                                                                                                                                                                                                                                                                       Tsvetkov
                                                                                     239 AA;
                                   Conservative
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                                               14.38;
                                                                                                                                                                                                                                                                                                                                                       Kondo
                                   36;
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                                               Score 156.5;
Pred. No. le
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                                   Mismatches
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E; Max; Mad;
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                                                            ВВ
                                                                                                                                       treatment in a mammal. Agents
                                   74;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SKP2-like protein;
c-Myc; MDM2; p53;
                                   Indels
                                                         Length
         -GRLAEVCT - -
                                   53;
                                   Gaps
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RESULT 13
AAB50537
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                                                                                                                                                                                                                  Query Match
Best Local S
Matches 47
                                                                                                                                                                                                                                                                                                                                                                                 The present invention describes a method for screening for an apoptosis inhibitor or an apoptosis promoter in which VDAC-Tiposome, an index substance which can pass VDAC and a sample are incubated and the change in the concentration of the index substance during the incubation is detected to judge the presence of apoptosis inhibition or apoptosis promotion. The apoptosis inhibitor or the apoptosis promoter can be used as a drug and a diagnostic agent for various diseases caused by apoptosis inhibition or apoptosis promotion. The present sequence represents the human Bcl-2 protein, which is an apoptosis inhibitor used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 11; Page 13-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Screening of an apoptosis inhibitor or promoter which can ldrug and a diagnostic agent for various diseases caused by inhibition or apoptosis promotion -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         08-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human Bcl-2 protein sequence SEQ
                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (KAGA-) KAGAKU GIJUTSU SHINKO JIGYODAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-APR-1999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB50537;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193
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APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSRQLHLTPFTAR-----GRFAT 132
                                                                                                          KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHTAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
                                                                                                                                                              EYVHARLLRAGLSW-----SAPERASPAPG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSRQLHLTPFTAR----GRFAT 132
                                                                                                                                                                                                                        1 Similarity 47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAC90809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promoter;
                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bcl-xL; Bax; VDAC;
                                                                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99JP-0101888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99JP-0101888
                                                                                                                                                                                                                                            14.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22pp; Japanese.
                                                   -VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109
                                                                                                                                                                                                                        36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        239
                                                                                                                                                                                                                  Score 156.5;
Pred. No. 1e-0
36; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO: 2
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                                                                                                                                                                                                                                                  1e-08;
                                                                                                                                                                                                                                                                         DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               inhibitor; detection;
                                                                                                                                                                                                                        74;
                                                                                                                                                              -----GRLAEVCT--
                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ) be used as one of the used as of the used as one of the used as one of the used as of the used 
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                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           programmed cell death-
                                                                                                                                                                                                                          substitutions Y22F, Q26N, and R165K relative to the wild type Bcl-xL protein. The invention also encompasses recombinant vectors and host cells comprising the modified nucleic acid sequence. The mutant Bcl-x protein is able to permeate the cell membrane, thus enhancing its ability to be taken up into a cell and to act as an inhibitor of apoptosis (programmed cell death). Bcl-xFNK and nucleic acids encoding it are useful in remedies for diseases associated with actin in the coll in additional collections.
                                                                                                                                                                                                                                                                                                                                                                                                                      Modified cDNA of rat bcl-x gene and encoded protein with membrane permeability to enhance uptake for effective inhibition of cell deat e.g. apoptosis, useful in remedies for diseases associated with cell
                                                                                                                                                                                                It are useful in remedies for diseases associated with cell death and in additives for maintaining the stability of transplanted cells and organs. The present sequence represents the mittant rest rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ohta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mutant rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB73304 standard; Protein; 233
                                                                                                                                                                                                                                                                                                                                                  The invention relates to a mutant rat Bcl-x protein and the cDNA
                                                                                                                                                                                                                                                                                                                                                                             Claim 1; Page 46-47; 56pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-211219/21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (NISC-) JAPAN SCI & TECHNOLOGY CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-AUG-1999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rat Bcl-xL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB73304
                                                                                                                                                           Sequence
                                                                                                                                                                                       Bcl-xFNK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 110 VAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169
                57
                                                                        21
                                           Ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BC1-xL mutant; Bc1-xFNK; apoptosis inhibitor; membrane permeable;
rammed cell death inhibitor; wild-type; antiapoptotic;
death-associated disease; tissue transplant preservative; mutein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                     SPTDKELVAQAKALGREYVHARLLRAGLSWS-----APERA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGWTDVLKCV-VSTDPGFRSHWL-VATLCS 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN 192
                                           SQSNRELVV-----
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                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bcl-xL
                                                                                                                                                           233 AA;
                -SPAPGGR--
                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99JP-0230642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein,
                                           -DFLSYKLSQKGFSWSNFSDVEENRTEAPEETEPERETPSAINGN
                                                                                                                14.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bcl-xFNK
                                                                                                   29;
                                                                                                                Score 155.5; DB : Pred. No. 1.2e-08
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                                                                                                   Mismatches
             -LAEVCTVLLRLGDELEQIRPSVYRNVARQLHI
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                                                                                                                              DB 22;
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                                                                                                   Indels
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                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                      Matches
                                                                                                                                                                                                                                  The 80-6 mutant (AAW01020) of the bcl-2 oncogene product (AAW01018) lacks amino acids 80-86 of the native protein. This and other Bcl-2 mutants (see also AAW01019-21) were used in a two hybrid assay to examine the interactions between Bcl-2 and novel apoptosis regulating proteins Nipl, Nip2 and Nip3 (AAW00997-99). 2 Motifs (AAW01003-04) on Bcl-2 were identified that are essential for interaction with the Nip proteins. These motifs show homology to motifs (AAW01005-06) identified on the adenovirus E1B 19K apoptosis-blocking protein (AAW01010).
                                                                                                                                                                                                                                                                                                                                                                                                     Nucleic acids encoding apoptosis regulating proteins - useful for diagnosing and treating immune disorders, malignancies, etc. \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Apoptosis-regulating protein; Bcl-2; oncogene; adenovirus E1B 19K protein; cell death; cancer immune disorder; diagnosis; therapy; BiplA; Bi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chinnadurai G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP733706-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nip2; Nip3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW01020;
                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                             Example 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1996-427055/43.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Apoptosis-blocking protein Bcl-2 mutant 80-6 (del80-86).
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                                            77
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                                                                                                                         37 EYVHARLLRAGLSW-----SAPERASPAPG-----
               AGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLG
                                            APGSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GCFATVVEELFR
                                                                                               {\tt KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGFFSSQPGHTPHPAASRDPVARTSPLQTPA}
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46;
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                                                                                                                                                                    Similarity
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                                                                                                                                                                                                            232
                                                                                                                                                      Conservative
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                                                                    -VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFS
                                                                                                                                                                 14.28; 22.78;
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Pred. No. 1.4e-08;
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therapy; BiplA; Bipl3; Bip5; NIp1;
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Qγ
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133 DGVNWGRIVAFFEEGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWDAFV 192
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DЪ

Search completed: April 29, 2003, 11:23:21 Job time: 34.5339 secs

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Maximum
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Perfect score:
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sp_rvirus:*
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sp_vertebrate:*
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O9umx3 homo sapien
O9i8i2 gallus gall
O9dgj5 gallus gall
O8t8y5 drosophila
O9ngx3 drosophila
O9v612 drosophila
O9v9c8 drosophila
O9v9c8 drosophila
Q923r6 cricetulus
Q919n4 brachydanio
Q99n36 mus musculu
Q35843 mus musculu
Q90298 brachydanio
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## ALIGNMENTS

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RESULT 1
 Query Match
                                                 HSU S.Y., Hsuch A.J.W.;

"A splicing variant of the Bcl-2 member Bok with a truncated BH3 domain induces apoptosis without dimerization with anti-apoptotic Bcl-2 proteins.";

Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases.

EMBL; AF051093; AAC61928.1;

InterPro; IPR000712; Bcl2_BH.

InterPro; IPR0002475; BCL2_family.

Pfam; PF00452; Bcl-2; 1.

SMART; SM00337; BCL: 1.

SMART; SM00337; BCL: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             O88857 PRELIMINARY; PRT; 170 AA.
088857;
01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
EC1-2-related ovarian killer protein.
                                                                                                                                                                                                                                                                  reproductive tissues and heterodimerizes with bcl-2 family members.";
                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; I
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Rattus norvegicus (Rat).
                                                                                                                                                                                                            FISSUE=OVARY;
                                                                                                                                                                                                                                                      Proc. Natl. Acad.
                                                                                                                                                                                                                                                                                              "Bok is a pro apoptotic bcl-2 protein with restricted e
                                                                                                                                                                                                                                                                                                                             MEDLINE=98024143; PubMed=9356461;
                                                                                                                                                                                                                                                                                                                                               TISSUE=OVARY;
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                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=10116;
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                           PS50062; BCL2_FAMILY;
170 AA; 18729 MW;
                                                                                                                                                                                                                                                      Sci.
 100.0%; Score 878;
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                     1.
15E54361F448CF16 CRC64;
DB 11; Length 170;
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; Murinae; Rat
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                                                                                                                                                                                                                          A Chen S., Nunez G.;

Submitted (DEC-1997) to the EMBL/GenBank/DDBJ databases.

R EMBL; AF027954; AAB87418.1; -.

R EMBL; AF027707; AAC53582.1; -.

R MGD; MGI:1858494; Bok.

InterPro; IPR00712; Bcl2_BH.

InterPro; IPR00715; BCL2_family.

R InterPro; IPR002475; BCL2_family.

R Pfam; PF00452; BCl-2; 1.

R SMART; SM00337; BCL; 1.

R PROSITE: PS50062; BCL2_FAMILY; 1.

R PROSITE: PS50062; BCL2_FAMILY; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=98024143; PubMed=9356461;
Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok is a pro-apoptotic Bcl-2 protein with restricted expression in
reproductive tissues and heterodimerizes with selective anti-apoptotic
Bcl-2 family members.";
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
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SPECIES-Rat; STRAIN-SPRAGUE-DAWLEY;
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     WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                   GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                     GGRLAEVCTVLLRL-----
                                                                                                     MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
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79.8%;
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Last sequence update)
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                                                                                                                                                                  Score 846.5; DB 11
Pred. No. 1.8e-71;
0; Mismatches 0;
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Sciurognathi; Muridae;
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                                                                                                                                                                                                                                                                                                                                                                                                               Ġ,
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                                                                                                                                                                                                                                                                                                                                                                                                               Merry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AND
                                                                                                                                                                    43;
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                                                                     -GIT
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Q9UMX3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 167
                                               Eukaryota; Metazo
Mammalia; Eutheri
NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9UL32;
01-MAY-2000
01-MAY-2000
01-JUN-2002
   SEQUENCE FROM N.A Zhang H.;
                                                                                                                                                     killer
                                                                                                                                                                                                                                                  Q9UMX3
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                                                                                                  Homo sapiens (Human)
                                                                                                                                  protein-like).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=9606;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                  Eutheria;
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HSU S.Y., HSueh A.J.W.;

"CDNA cloning of the human Bok gene
Submitted (SEP-1998) to the EMBL/Ge
EMBL; AF089746; AAF09129.1;
InterPro: IPR002475; BC12_BH.
InterPro: IPR002475; BC12_Family.
Pfam: PF00452; BC1-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 213 AA; 23540 MW; 5950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BOK.

HOMO sapiens (Human).

""karyota; Metazoa; Chordata; "
""karyota; Primates;
                                                                           09UMX3:
01-MAY 2000 (TrEMBLrel. 13, 0
01-MAY 2000 (TrEMBLrel. 13, 1
01-JUN-2002 (TrEMBLrel. 21, 1
BCL-2-related ovarian killer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bcl-2 related ovarian killer.
                                                                                                                                                                                                                                                                                                                                                                       STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                 GGRLAEVCTVLLRL-----
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                                                                                                                                                                                                                                                                                                                     GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
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                                                               protein-like-PENDING)
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0 (TrEMBLrel.
2 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
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Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                         94.48;
78.48;
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21,
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                                                                           Created)
Last sequence update)
Last annotation update)
r protein (Similar to BC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                          Score 828.5;
Pred. No. 8.6e
0; Mismatches
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                                                                (BCL-2-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homd.
Craniata; V
Catarrhini;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
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59509F8C7330517F CRC64;
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3;
            Vertebrata;
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                                                                              BCL-2-related
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             Euteleostomi;
                                                                  killer
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                          Gallus (Chicken).
Gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Eukaryota; Metazoa; Neognathae; Galliformes; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q91812;
Q91812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BC1-2-related ovarian killer protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Gene expression protein.";
                                                                                                        Pfam; PF00452; Bcl-2;
SMART; SM00337; BCL; 1
                                                                                                                                                                                         Zhang H., Holzgreve W., De Geyter C.; "Evolutionarily conserved Bok proteins FEBS Lett. 480:311-313(2000).
EMBL; AF275944; AAF81282 1; -
                                                                                                                                                                                                                                                                               MEDLINE=20487164; PubMed=11034351;
                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000712; Bcl2_BH. InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
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                                                                                                                                       ъмвы; AF4/5944; AAF81282.1; -.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family
Pfam. PF00452. 551
                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=9031;
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mes 162; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
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BC006203; AAH06203.1;
BC017214; AAH17214.1;
                                                                 PS50062; I
213 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
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                                                               BCL2_FAMILY;
; 23619 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCL2_FAMILY;
; 23280 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91.2%;
76.1%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 801; DB ...
Pred. NO. 3.2e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL/GenBank/DDBJ
    Score 699.5; DB Pred. No. 1e-57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 053ED605FF8EF5B2 CRC64;
                                                                 B3AF7049F25442E3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      213
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                                                                                                                                                                                                                                                                                                                                                                                            Phasianidae;
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RESULT Q8T8Y5 ID Q8 AC Q8 DT 01 DT 01 DT 01

Q8T8Y5; Q8T8Y5; 01-JUN-2002 01-JUN-2002 01-JUN-2002

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137 180

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STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170

STDPSLRSHWLVAAVCSFGHFLKAIFFVLLPER

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RESULT Q9DGJ5-
ID Q9
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
MILLS E.M., Johnson A.L., Bridgham J.T.;
"Characterization and Expression of Bok in the Hen Ovary.";
Submitted (JUL-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF290888; AAG01182_1;
-...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Bc1-2-related ovarian killer protein.
Bc1lus gallus (Chicken).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BC12_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
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                                                                                                                                                                                                                                                                                                                                     SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gallus
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GGKLAEVSAILLRLGDELEYIRPNVYRNIARQLNISLHSETVVTDAFLAVAAQIFTAGIT
                                                   GGRLAEVCTVLLRL-----
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                                                                                                                                                                                                                                                                                                                                                         BCL2_FAMILY; 1.
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                                                                                                                                                                                                                                                                                                                                     23658 MW;
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                                                                                                                                                                                                                                         Score 693.5; DB 1
Pred. No. 3.7e-57;
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Best Local S
Matches 56
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EMBL; AY07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J., Champe M., Chavez C., Dorsett V., Dresnek D., Farfan D., Frische D., George R., Gonzalez M., Guarin H., Kronmiller B., Li P., Liac Miranda A., Mungall C.J., Nunco J., Pacleb J., Paragas V., Paratel S., Phouanenayong S., Wan K., Yu C., Lewis S.E., Rubin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID=7227;
                                                                                                                     InterPro; iPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF004452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                           FlyBase; FBgn0040491; Buffy. InterPro; IPR000712; Bc12_BH.
                                                                                                                                                                                                                                                                                          Drosophila melanogaster cell death J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila melanogaster (Fruit fly)
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                                                                                                                                                                                                                                             HSSP; Q07817;
                                                                                                                                                                                                                                                                    EMBL; AF237864; AAF44120.1;
                                                                                                                                                                                                                                                                                                                                     Richardson H., Kumar S.;
"Debcl, a proapoptotic bcl-2
                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-20153510; PubMed-10684252; Colussi P.A., Quinn L.M., Huang D.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9NGX3;
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                                                                                            PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VCBI_TaxID=7227;
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A; 33379 M
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Eukaryota; Metazoa; Arthropoda; Tracheata;
Pteryota; Neoptera; Endopterygota; Diptera
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                               Zhang H.,
Reed J.C.;
                                                                                                                                                                                                                                                                                                                 Miura M.;
"Drob-1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Death EXECUTIONER BCL-2 homolog protein (PROAPOPTOTIC BCL-2 homolog
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1)
DEBCL OR DBORG1 OR BCK OR BCL2 OR BG1 OR ROB-1 OR CG12397.
DEBCL OR DBORG1 OR BCK (Fruit fly)
DESCOPTOTION METAZOA; Arthropoda; Tracheata; Hexapoda; Insecta;
EnkaryOta; Metazoa; Arthropoda; Diptera; Brachycera; Muscomorphi
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01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9V9C8;
                                                                                          "Debcl, a proapoptotic Bcl-2 homologue, is a Drosophila melanogaster cell death machinery, J. Cell Biol. 148:703-714(2000).
                                                                                                                                                       MEDLINE=20153510; PubMed=10684252;
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InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                         Colussi P.A., Quinn L.M., Huang Richardson H., Kumar S.;
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conservation of cell death
                                            SEQUENCE FROM N. Zhang H., Huang
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   Zhou L., Sur
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                                             FlyBase; FBgn0029131; debcl
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AF178430; AAF26289.1;
AF28044; AAF89165.1;
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AF216752; AAF25955.1;
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al Drosophila homologue
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SEQUENCE FROM N.A. Kurada P., White K.; "Putative Drosophila
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PROSITE; PS50157; ZINC_FINGER_C2H2_2;
DNA-binding; Zinc-finger MISSING;
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SEQUENCE 300 AA; 32940 MW; FF29E0/
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SMART; SM00337; BCL; 1.
SEQUENCE 317 AA; 34649
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Bukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;

Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;

Ephydroidea; Drosophilidae; Drosophila.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEBCL OR CG12397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q95U83
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                                               216
                                                                                                                                             156
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                                               DCVRQGHFDYLQCLIDGLAEIIGRPGLLADRQRRMVG
                                                                                             DCVRQAQPAMVHALVDCLGEFVRK--TLATWLRRRGG
                                                                                                                                                                                                                                            DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
                                                                                                                                                                                                                                                                                          ELVAQAKALGREYVHARLLRAG-LSWSAPER-----
                                                                                                                                             MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 129
7
                                                                                                                                                                                          -----ASPAPGGRLAE-----VCTVLLRLGITWGKVVSLYSVAAGLAV 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DCVRQGHFDYLQCLIDGLAEIIEDDLVYWLIDNGGW 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ELVAQAKALGREYVHARLLRAG-LSWSAPER-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ASPAPGGRLAE------VCTVLLRLGITWGKVVSLYSVAAGLAV
                                                                                                                                                                                                                                                                                                                                          43; Conser
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                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                         34649 MW;
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28.2%;
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                                                                                                                                                                                                                                                                                                                                       Score 142; DB Pred. No. 2.2e L8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
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-> R (IN REF. 4).
FF29E0ADCF3D0942 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                         46B22FED1CC6F01F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 5;
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RESULT 13
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00452; Bc1-2; 1.

Pfam; PF00452; Bc1-2; 1.

Pfam; PF00452; Bc1-2; 1.

TIGRFAMS; TIGR00865; bc1-2; 1.

PROSITE; PS50062; Bc12; PAMILY; 1.

PROSITE; PS01080; BH1; UNKNOWN_1.

PROSITE; PS01258; BH2; UNKNOWN_1.

PROSITE; PS01259; BH3; UNKNOWN_1.

PROSITE; PS01250; BH4]; UNKNOWN_1.

PROSITE; PS01260; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q923R6;
Q923R6;
01-DEC-2001
                                                                                                                                                                                                                                                                        Q919N4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCL2.
Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                  Cyprinidae;
                                                                                   Brachydanio rerio (Zebrafish)
Eukaryota; Metazoa; Chordata;
Actinopterygii; Neopterygii;
                                                                                                                                                                                                        01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Construction of a robust CHO cell line for biopharmaceutical Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases. EMBL: AF404339; AAK92201.1; •.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cricetulus
SEQUENCE FROM N.A
                                          NCBI_TaxID=7955;
                                                                                                                                                                                                                                                     01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR000712; Bc12_BH.
InterPro; IPR003093; Bc12_BH4.
InterPro; IPR002475; Bc12_family.
InterPro; IPR004725; Bc12_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10030;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              118
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA 60
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                                                                   HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                           TLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FTARGRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chen
                                                                                                                                                                                                      (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.)
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(TrEMBLrel.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 236 AA;
                                                                  Danio.
                                                                                                                                                                                                                                                                                                   PRELIMINARY;
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Last sequence
Last anno
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                                                                                     n) (Zebra danio).
n; Craniata; Vert
: Teleostei; Osta
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Pred. No. 0.000
25; Mismatches
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                                                                                                                                                                                                      sequence update)
annotation update)
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                                                                                   Vertebrata; El
Ostariophysi;
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56;
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on update)
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Best Local S
Matches 34
                                                                       Matches
                                                                                    Query Match
Best Local
                                                                                                                                                PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                                                  Submitted (MAR-1999) to the EMBL/GenBank/DDBJ databases EMBL; AF133279; AAK15454.1; ... EMBL; AF133281; AAK15454.1; JOINED. HSSP; P53563; 1AF3; InterPro; IPR000712; Bc12_BH. InterPro; IPR000712; Bc12_BH. EMBL PF00452; Bc1-2; 1. SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q99N36;
                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                         STRAIN-129/SVJ;
                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia; NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                           B-cell leukemia/lymphoma
                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-2001 (TrEMBLrel.
01-JUN-2001 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Interpro; IPR000711; Bc12_BH.
Interpro; IPR002475; BCL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
SEQUENCE 192 AA; 21401 MW; 8A71A630A56FDC32 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; AF231015; AAF66960.1;
HSSP; P53563; 1AF3.
InterPro; IPR000712; Bc12_Bi
                                                                                                                                                                                                                                                                                   gene Bcl-x-gamma."
                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=20373792; PubMed=10917738; Inohara N., Nunez G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cell Death Differ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 zebrafish.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nohara N., Nunez G.; {}^{\circ} Genes with homology to mammalian apoptosis regulators identified
                                                                                                                                                                                                                                                                                                             ang X.-F.,
 126
                          109
                                                                                                                                                                                                                                                                                               Novel cDNA structure and genomic organization of apoptosis
                                                                                                                                                                                                                                                                                                                                      EQUENCE FROM N.A.
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 RGGW---
                                             EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
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                       QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 168
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                                                                      Similarity 25.0
25; Conservative
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                                                                                                                                              PS50062; BCL2_FAMILY; 1.
PS01080; BH1; 1.
PS01259; BH3; 1.
                                                                                                                         219 AA;
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17, Last sequence update)
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                                                                      Score 109.5; DB Pred. No. 0.016; 7; Mismatches
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Mus musculus (Mouse).
Thervota; Metazoa; Chordata;
                                                                                                                                                                                 PROSITE;
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Immunity 7:629-639(1997).
EMBL; U51277; AAC53458.1; -.
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SMART; SM00265; BH
                                                                                                                                                                                                                                                                     Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=B6/CBA; TISSUE=THYMUS;
MEDLINE=98051053; PubMed=9390687,
Yang X.-F., Weber G.F., Cantor H
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Mammalia; Eutheria; NCBI_TaxID=10090;
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MGD; MGI:88139; BC
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                                                                                  QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 184
                                        NGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET
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PS50063; BH4_2; 1.
235 AA; 26122 MW;
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IPR003093; Bc12_BH4
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 SwissProt_40:*
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 BAXA_MOUSE
BAXA_RAT
BAXA_MOUSE
BAXD_HUMAN
BAXA_BOVIN
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BAXA_BOVIN
BAXA_BOVIN
BAXA_HUMAN
BFL1_MOUSE
SSDH_HUMAN
BFL1_HUMAN
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PTPO_MOUSE
IRR_MOUSE
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BAXB_HUMAN
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AR11_XENLA
BAK_HUMAN
BAXA_HUMAN
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        Q16611
Q07813
Q92843
Q92843
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Q078134
Q6369
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Q63794
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Q64373
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P70345
Q91828
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mus musculu
rattus norv
mus musculu
homo sapien
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	236 AA.	PRT;		STANDARD;	STA	T 1 RAT BCL2_RAT	ULT 1 2_RAT BCL
	ALIGNMENTS	ALIGN					
	\JA	FIXA_BRAJA	<del>)</del>	288	8.1	71	45
Q9ccr2 mycobacteri	TE	CARB_MYCLE	Ц	1121	8.1	71.5	44
Q11151 mycobacteri	TU	Y485_MYCTU	L	438	8.1	71.5	43
	(XA	CRTJ_MYXXA	ᆫ	517	8.2	72	42
Q9uzs9 pyrococcus	AB	IDI2_PYRAB	Н	370	8.2	72	41
Q24702 dictyocaulu	;vi	DVA1_DICVI	۳	1557	8.3	72.5	40
P46550 caenorhabdi	SEL	TCPZ_CAEEI		539	8.3	72.5	39
Q90343 coturnix co	'JA	NR13_COTJA	ب	177	8.3	72.5	38
Q10400 mycobacteri	TU	YM12_MYCTI	L	378	8. <sub>3</sub>	73	37
Q07820 homo sapien	AN	MCL1_HUMAN	_	350	8.4	73.5	36
P37398 oryza sativ	Ä	VIV_ORYSA	щ	728	8.5	74.5	35
Q10607 mycobacteri	D	RHO_MYCTU	1	602	8.5	74.5	34

C granule and pyramidal neurons of hippocampus, ponting nuclei, cerebellar granule neurons, and in ependymal cells. In prenatal
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similarity).
Bcl-x(L). Heterodimerization with BAX requires intact BH1 and
<del>-</del>
C permeability. Appears to function in a feedback loop system with
-!- FUNCTION:
RI Neuroscience 61:165-177/1994).
"bc1-2
RA Lindholm D.;
MEDLINE 95059917; PubMed 7969891;
RN [3]
T bcl-2 and bcl-xlong messenger ribonucleic acid levels.";
ovary: equine chorionic gonadotropin-mediated inhibition of granulosa
RA Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;
MEDLINE=95129487; PubMed=7828536;
Gene 140:291-292(1994).
The sactoring and sequencing of a cDNA encoding the rat Bcl-2 protein.";
MEDLINE=94193015; PubMed=8144041;
RC TISSUE=Brain;
RP SEQUENCE FROM N.A.
NCBI_TaxID=10116;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
Apoptosis regulator Bcl-2.
)T 01-0CT-1996 (Rel. 34, Created)
SCL2_RAT

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PROSITE; PS01259;
PROSITE; PS01250;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long modified and this statement is not removed
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                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 promoting further caspase activity (By similarity).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         brain, expression is higher
and in the cortical plate.
DOMAIN: The BH4 domain is r
for interaction with RAF-1
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                                                                                                                            VAQAKALG-----
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VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                  MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA
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                                                                                                                                                                        45; Conser
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IPR003093; Bcl2_BH4.
IPR004725; Bcl2_reg
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                                                                                                                                                                        Conservative
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AAA77687.1; -.
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BH4_2; 1.
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BCL2_FAMILY; 1.
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                                                                                                                                                                                                                                                      POTENTIAL.
CLEAVAGE (BY CASPASES) (BY PHOSPHORYLATION (BY PKC) (1 A .> R (IN REF. 2).
E -> G (IN REF. 1).
S -> Y (IN REF. 2).
L -> Q (IN REF. 2).
L -> Q (IN REF. 2A).
                                                                                                                                                                    Score 137; DB Pred. No. 2.6e
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2.
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2.6e-06;
57;
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There are no restrictions on ong as its content is in no
                                                                                                                              -SAPERASPAPG-----
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PKC) (BY SIMILARITY).
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                                                                                                                                                                                                                236;
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RESULT 2
BCL2_HUMAN
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                                                                                              programmed cell death.";
Nature 348:334-336(1990)
[7]
                                                                                                                                                                                                                                                                           "Franaka S.; Louie D.C., Kant J.A., Reed J.
"Frequent incidence of somatic mutations oncogenes of non-Hodykin's lymphomas."; Blood 79:229-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                     "Alternative promoters and exons, somatic mutation of the Bc1-2-Ig fusion gene in lymphoma."; EMBO J. 7:123-131(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cleary M.L., Smith S.D., Skiar J.;
"Cloning and structural analysis of cDNAs for bcl-2 and 2/immunoglobulin transcript resulting from the t(14;18) translocation.";
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01-MAR-1989 (Rel. 10, Created)
01-APR-1939 (Rel. 25, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCL2
MUTACENESIS.
MEDLINE=94239528; PubMed=8183370;
Yin X.-M., Oltvai Z.N., Korsmeyer
"BH1 and BH2 domains of Bc1-2 are
                                                                                                                                                                                                         SUBCELLULAR LOCATION. MEDLINE=91066924; Pur
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE=88196071; I Seto M., Jaeger U.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. (ISOFORM ALPHA MEDLINE-87002488; Pubmed-2875799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in a variety of tissues including lymphoid adult and embryo.";
Nucleic Acids Res. 20:4187-4192(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bcl-2,
                                                                                                                                                            Hockenbery D., Nunez G., Milliman C., Schr
"Bcl-2 is an inner mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Goldman P.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-86259760;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalia; Eutheria;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       47:19-28(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   e structure, transcripts, and protein involved in human follicular lymphomad. Sci. U.S.A. 83:5214-5218(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PubMed=2834197;
, Hockett R.D., G
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PubMed-1508712;
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required
                       S.J.;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   apoptosis and heterodimerization with Bax."; Nature 369:321-323(1994).
                                                                                                                                                               use by non-profit institutions as long modified and this statement is not removed.
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Science 278:1966-1988(1997).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity). PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

DISEASE: Involved in follicular lymphoma (FL) (also known as type
                                                                                                                                                                                                                                                                                                                                                                                             regions.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: BELONGS: TO THE BCL-2 FAMILY.
DATABASE: NAME-Atlas Genet. Cytogenet. Oncol. Haematol.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, Bcl-x(L). Heterodimerization with BAX requires intact BHI a domains, and is necessary for anti-appottotic activity (By similarity). Also interacts with APAF-1 and RAF-1.

SUBCELLULAR LOCATION: Outer mitochondrial membrane, intrace membrane of the nuclear envelope and the endoplasmic reticu ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and be are produced by alternative splicing.

TISSUE SPECIFICITY: Expressed in a variety of tissues.

DOMAIN: The BH4 domain is required for anti-apoptotic actives interaction with bars.
                                                                                                                                                                                                                                 ween the Swiss Institute of Bioinfo
European Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoletic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1).
                                                                                                                                                                                           SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the Excurpean Bioinformatics Institute. There are no restruction by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                              WWW-"http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DISEASE: Involved in follicular lymphoma (FL) (also known as II chronic lymphatic leukemia) by a chromosomal translocation t(14.18)(q32;q21) which involves Bcl2 and immunoglobulin gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E.H.-Y., Kirsch
                                                                                             s requires a license agreement (S an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           kinase pathway normally act
ll. Biol. 19:8469–8478(1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of Bcl-2 to a Bax-like death effector by caspases.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ichijo H., Korsmeyer
   AAA51813.
AAA51814.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BY ASK1/JNK1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=10567572;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AND MUTAGENESIS
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ALT_SEQ.
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                                                                                                                                (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ravi R., Kastan M.B., Bedi
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d at G(2)/M.";
                                                                                                                                                                  Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translocation
                                                                                                                                                                                                                             restrictions
                                                                                                                                                                  and
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and beta;
                                                                                                                                                                                                                                                             EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           activity and
                                                                                                                                                                                                                                                                                               a collaboration
                                                                                                                                                                  for
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Best Local
                                                                                                                  Matches
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PROSITE; PS01080; BH1; 1.

PROSITE; PS01258; BH2; 1.

PROSITE; PS01259; BH3; 1.

PROSITE; PS01259; BH3; 1.
                                                                                                                                                                CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIR; C37332; C37332.
PIR; D37332; D37332.
HSSP; Q07817; 1MAZ.
                                                                                                                                                        SEQUENCE
                                                                                                                                                                                             CONFLICT
                                                                                                                                                                                                                                                                                    VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS01260; BH4_1; 1. PROSITE; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genew;
                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                 VARIANT
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                                                                                                                                                                                                                                    MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR003093; InterPro; IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MIM; 151430;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [nterPro; IPR0007]
                                                                             17
                                                                                               37
                  71 LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NL; M14745; AAA35591.1;
LL; X06487; CAA29778.1;
LL; X72602; AAD14111.1; t
329409; TVHUB1.
C; A29409; TVHUB1.
C; A24428; TVHUBC.
                                                                                                                                                                                                                                                                                                                                                               RES
                                                                            KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                              EYVHARLLRAGLSW-----SAPERASPAPG-----
LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD
                                      APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARGRFATVVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PF00452; Bcl-2; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SM00337; BCL;
SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HGNC:990; BCL2.
                                                                                                                 40;
                                                                                                                          Similarity
                                                                                                                                                         239
                                                                                                                                                                 48
59
117
129
                                                                                                                 Conservative
                                                                                                                                                                                                                 188
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64
145
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93
136
187
212
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                                                                                                                                                                                                                                                                                                                                                                                                                               Disease
                                                                                                                                                                                                                                                                                                                                                                                                                                       ; Apoptosis; Alter
Phosphorylation;
                                                                                                                                                        ĀĀ
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64
145
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                                                                                                                                                                                                                                                                                                                59
                                                                                                                                                        26266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bcl2_BH4.
Bcl2_reg.
                                                                                                                           14.8%;
19.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCL2_family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       вс12_вн
                                                                                                                                                                                                                                                                                                                                                                                                                                mutation
                                                                                                                                                LOSS OF ANII.
W->A: NO HETERODIMERII.
W->A: NO HETERODIMERII.
LOSS OF ANTI-APOPTOTIC AV
I -> F (IN REF. 4).
P -> T (IN REF. 3).
S -> R (IN REF. 3).
R -> C (IN REF. 4).
R -> C (IN REF. 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALT_SEQ
                                                                                                                 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Alternative splicing; Transmembrane; tion; Chromosomal translocation;
                                                                                                                          Score 130;
Pred. No. 1
                                                                                                                                                                                                                                   D->A:
D->A:
G->A:
                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.

CLEAVAGE (BY CASPASE-3).

PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
                                                                                                                                                                                                                                                                                   /FTId=VAR_000828.
V -> I (IN NON-HODGKINS-LYMPHOMA;
                                                                                                                                                                                                                                                                           MUTATION)
                                                                                                                                                                                                                                                                                                                                                    DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL
                                                                                                                                                                                                                                                               /FTId=VAR_000829
                                                                                                                                                                                                                                                                                                                         /FTId=VAR_000827
                                                                                                                 Mismatches
                                                                                                                                                                                                                          OF ANTI-APOPTOTIC ACTIVITY.
                                                                                                                                                                                                                                                                                                               S (IN NON-HODGKINS-LYMPHOMA;
                                                                                                                                                                                                                                   NO EFFECT ON CLEAVAGE NO HETERODIMERIZATION
                                                                                                                                                                                                                                                       ABOLISHES
                                                                                                                                                                                                      NO HETERODIMERIZATION WITH BAX AND DE ANTI-APOPTOTIC ACTIVITY.
                                                                                                                                                                                                                                                                                                                                            VGASGDVS (IN
                                                                                                          DB 1,
1.3e-05;
53;
                                                                                                                                                                                                                                                       CLEAVAGE
                                                                                                                               Length 239;
                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                            ISOFORM BETA)
                                                                                                                 Indels
                                                                                                                                                                                                                                                       ВУ
                                                         GRLAEVCTV
                                                                                                                                                                                                                                   BY CASPASE-3
WITH BAX AND
                                                                                                                                                                                                                                                       CASPASE-3
                                                                                                                 88;
                                                                                                                                                                                                                                                                                    SOMATIC
                                                                                                                                                                                                                                                                                                               SOMATIC
                                                                                                                Gaps
196
                   130
                                                        70
                                                                            76
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131

DVLKCV-VSTDPGFRSHWL-VATLCS

154

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_BOVIN
                                                                  use by non-profit institutions as long a modified and this statement is not removed. entitles requires a license agreement (See lor send an email to license@isb-sib.ch).
                                                                                                                                                                             This
                                                                                                                                            the
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                                                                                                                                                                                                                                                                                                                                                              -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases -:- FUNCTION: Suppresses apoptosis in a variety of cell
                  EMBL; U92434; AAB53319.1; HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of Bcl-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Reyes R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-Holstein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCL2_BOVIN 002718;
   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Bovine leukemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bos taurus (Bovine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Apoptosis regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-OCT-2001 (Rel.
15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    197
                                                                                                                                                                                        activity, causes the release of cytochrome c into the cytos promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                        s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAA, BAK and BCl-x(L). Heterodimerization with BAX requires intext BHI and BH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By
                                                                                                                                                                                                                                                                                                                                                                                                            occurs during the G2/M phase of the cell cycle (By similarity). the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          similarity).
                                                                                                                                                                                                                                                                                                                                                      PTM: Proteolytically cleaved by caspases during apoptosis.
                                                                                                                                                                                                                                                                                                                                                                            similarity)
                                                                                                                                                                                                                                                                                                                                                                                           kinases. Dephosphorylated by protein phosphatase 2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ine leukemia virus associated-leukemogenesis is correlated
suppression of programmed cell death and increased expres
:1-2.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM N.A.
tein; TISSUE-Thymus;
Cockerell G.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40, Created)
40, Last sequence up
41, Last annotation
BCL2_family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            229
                                                                                    (See http://www.isb-sib.ch/announce/
                                                                                                                     There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A
                                                                                                     Usage
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                                                                                                                                        restrictions
                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                             (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         expression
                                                                                                                                                       EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       activity and
                                                                                                                                                                                                                                                                                                                       cytosol
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                                                                                                                                                            collaboration
L outstation -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
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Best Local
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InterPro; IPRO00
InterPro; IPRO00
InterPro; IPRO04
Pfam; PF00452; I
                                                                                                                                                                                                                                                                                                                                                                         16-OCT-2001
16-OCT-2001
15-JUN-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
DOMAIN
                                                                                                                                                TISSUE=Ovary;
MEDLINE=20431763; PubMed=10973819;
                                                                                                                                                                                                                                                                        Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                             Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster)
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi
                                                                                                                                                                                                                                                                                                                                                                                                                                       , 8VLL60
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DOMAIN
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MEDLINE=21092839;
Tomicic M.T., Kai
                                                                                                                                                                                                                                                          Cricetulus
                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCL2_CRILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE;
                                     SEQUENCE FROM N.A.,
                                                                                               protein."
                                                                                                             "Cloning and functional analysis of cDNA encoding the hamster Bcl-2
                                                                                                                                      Pomicic M.T.,
                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                   NCBI_TaxID=10030;
                                                                                                                                                                                                                                                                                                                                                       Apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGRFAMS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RPLFDFSWL---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV-VST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPAAAAAGPAP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARERFATVVEELFRDGVNWGR 136
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PS01080;
PS01258;
PS01259;
                                                                        Biophys.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PS50062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR000712;
IPR003093;
                                                                                                                                                                                                                                                                                                                                                       01 (Rel. 40, Created)
01 (Rel. 40, Last sequence update)
02 (Rel. 41, Last annotation updat regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
229 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                      Christmann M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bcl-2;
BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BH4_1;
BH4_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----SLKALLSLAL
                  PubMed=11181062
                                                                            Res.
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68
72
97
145
192
223
                                                                                                                                                                                                                                                                            Chordata;
Rodentia;
                                     AND CLEAVAGE BY CASPASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25099 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
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                                                                          Commun. 275:899-903(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mitochondrion; Phosphorylation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25;
                                                                                                                                    Kaina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 129;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLEAVAGE (BY CASPASES) (BY SIMILARITY). PHOSPHORYLATION (BY PKC) (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BH3
BH1
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                                                                                                                                                                                                                                                                          Craniata; Ver
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADIDDOAF98FFF11D CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               215
                                                                                                                                      В.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              236
                                                                                                                                                                                                                                                                                                                                                                              update)
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l.5e-05;
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                                                                                                                                                                                                                                                                              Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GRLAEVCTVLLRLGITWGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 229
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                                                                                                                                                                                                                                                                            Euteleostomi 
; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6;
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Query Match
Best Local
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PROSITE: PS50062; B
PROSITE: PS01258; B
PROSITE: PS01259; B
PROSITE: PS01259; B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     use by non-profit institutions as lone modified and this statement is not remove entitles requires a license agreement (so or send an email to license@isb-sib.ch).
                                           MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the European Bioinformatics Institute. There use by non-profit institutions as long as modified and this statement is not removed.
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                                                                          SITE
                                                                                                                                                                                                                                                                                                                Pfam; PF00452; Bc1-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                            HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Hamster Bcl-2
                                                                                                       DOMAIN
                                                                                                                      DOMAIN
                                                                                                                                                    DOMAIN
                                                                                                                                                                  Apoptosis;
                                                                                                                                                                                PROSITE;
                                                                                                                                                                                              PROSITE;
                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002475;
                                                                                       FRANSMEM
                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELJULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity). The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity). The BH4 domain is required for anti-apoptotic activity. Growth factor-stimulated phosphorylation anti-apoptotic activity. Growth factor-stimulated phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        caspase-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the absence of growth factors, Bcl2 appears to be phosphorylated
by other protein kinases such as ERKs and stress-activated kinases
(By similarity). Dephosphorylated by protein phosphatase 2A (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  on Ser-70 by I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               release of cytochrome c from the mitochondria and/or by binding to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SWISS-PROT
                                                                                                                                                                                                                                                                                                                                                                                                            Q07817;
                                                                                                                                                                                                                                                                                                                                                                                                                         AJ271720;
                                                                                                                                                                                                                                                                                     SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             similarity).
 Similarity
                                                                                                                                                                              PS01260;
PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biophys. Res.
                                                                                                                                                                                                                                                                                                                                               IPR004725;
                                                                                                                                                                                                                                                                       TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                              IPR000712;
                                                                                                                                                                Transmembrane;
                                             236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70 by PKC is required for the anti-apoptosis during the G2/M phase of the cell cycle (By
                                                            10
90
133
184
209
64
70
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry is copyright. It is produced through a constitute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                     BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                         CAB92245.1;
                                                                                                                                                                                                                       865; bcl-2; 1.
BCL2_FAMILY;
BH1; 1.
BH2; 1.
                                                                                                                                                                              BH4_1; 1.
BH4_2; 1.
                                                                       104
152
199
230
                                             70
26491
                                                                                                                                                                                                                                                                                                                                           BC12_BH.
BC12_BH4.
BC12_reg.
 14.6%;
19.6%;
                                                                                                                                                                                                                                                                                                                                                                                         BCL2_family.
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                                             MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cleaved
                                                                                                                                                                Mitochondrion; Phosphorylation
                                                                      BH4.
BH3.
BH1.
BH2.
POTENTIAL.
CLEAVAGE (BY CASPASE 3 AND C
 Score
Pred.
                                           PHOSPHORYLATION (BY PKC)
BECADF1EF3337228 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        281:404-408(2001)
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 128;
No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (See http://www
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               There are no rest
 DB 1;
.9e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Usage
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               Length
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               restrictions
                                                         (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .isb-sib.
                                                                         CASPASE-9)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γď
                                                         SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    caspase-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                collaboration
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RESULTATION OF THE PROPERTY OF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BCL2_MOUSE STANDARI
P10417; P10418;
01-MAR-1989 (Rel. 10, C
01-APR-1993 (Rel. 25, I
15-JUN-2002 (Rel. 41, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in a varie adult and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
Cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOUSE
                                                                                                                                                                                                                                                                                                                   Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.; "Reversible phosphorylation of Bcl2 following interleukin 3 bryostatin 1 is mediated by direct interaction with protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Negrini M., Silini E., Kozak C., Tsujimot "Molecular analysis of mbcl-2: structure gene homologous to the human gene involve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eguchi Y., Ewert D.L., Tsujimoto Y.; "Isolation and characterization of the chicken in a variety of tissues including lymphoid and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Apoptosis regulator Bcl-2
BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                 phosphatase 2A*.
                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=99069407;
                                                                                                                                                                                                                                                                                                                                                                                                                          DEPHOSPHORYLATION BY PP2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ito T., Deng X., Carr B., May W.S. Jr.;
"Bcl-2 phosphorylation required for anti-apoptosis function.";
J. Biol. Chem. 272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=97277291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PHOSPHORYLATION BY PKC, AND MUTAGENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REVISIONS TO 221-222.
MEDLINE=92375724; PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=87187643; PubMed=3032455;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. (ISOFORMS STRAIN-BALB/c; TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28
                                                                                                                                                                                                                                                                       Biol. Chem.
                                                                     the apoptosis-activating factor (APAF-1) SUBUNIT: Forms homodimers, and heterodim
                                                                                                                                           including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                             Siol. Chem. 273:34157-34163(1998). FUNCTION: Suppresses apoptosis in
                                              Bc1-x(L).
                                                                                                                         release of cytochrome c from the mitochondria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             49:455-463(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FTARGREATVVEELERDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Acids Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                       and
                                                                                                                                                                                                                                                                                                   is mediated 2A*.":
                                                   Heterodimerization with BAX requires intact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                         18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=9115213;
                                                                                                                                                                                                                                                                                                                                                                                             PubMed=9852076;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20:4187-4192(1992).
                         necessary
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Last annotation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C., Tsujimoto Y.,
2: structure and e:
gene involved in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALPHA
                       for anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata;
Sciurognathi; Muridae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                        and heterodimers with BAX,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AND
                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         236
                                                                                                                                                                                                                                               a variety of cell systems
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OF,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SERINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ., Croce C.M.;
expression of the murine
n follicular lymphoma.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          neuronal organs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bcl-2 gene: expression
c activity RAF-1.
                                                                                                                      preventing and/or by 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESIDUES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Murinae;
                                                                                                                      by binding
                                                 BAD,
BH1
                         (Ву
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                92;
                                                                                                                                                                                                                                                                                                                                                  õ
                                                                          BAK and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
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δõ
                                                                                                                             Query Match
Best Local
                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPRO02475; BCL2_family.
InterPro; IPRO00712; Bcl2_BH4.
InterPro; IPRO0073093; Bcl2_BH4.
InterPro; IPR004725; Bcl2_reg.
InterPro; IPR00475; Bcl2_reg.
InterPro; IPR000475; Bcl2_reg.
InterPro; IPR004725; Bcl2_reg.

                                                                                                                                                                    Phosphorylation.
DOMAIN 10
DOMAIN 90
DOMAIN 133
DOMAIN 184
TRANSMEM 209
SITE 34
MOD_RES 70
VARSPLIC 193
                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS50062; I
PROSITE; PS01080; I
PROSITE; PS01258; I
PROSITE; PS01259; I
                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long as its content modified and this statement is not removed. Usage by are entitles requires a license.
                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIGRFAMs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MGD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                 \poptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            issp;
28 VAQAKALG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dephosphorylated by protein phosphatase 2A (PPZA).

PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                L; L31532; AAA37282.1;
L; M16506; AAA37282.1;
L; M16506; AAA37281.1;
; A25960; TVMSA1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             are pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    anti-apoptotic activity. Growth factor-stimulated phosphorylation Ser-70 by PKC is required for the anti-apoptosis activity are occurs during the G2/M phase of the cell cycle. In the absence growth factors, Bcl2 appears to be phosphorylated by other proteiness such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for interaction with RAF-1.
PTM: Phosphorylation/dephosphorylation on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN: The BH4 domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBCELLULAR LOCATION: Outer mitocnongriat membrane of the nuclear envelope and the endoplasmic reticulum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGI:88138; Bc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B25960; TVMSB1.
E37332; E37332.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWISS-PROT entry is copyright. It is produced through a ceen the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q07817;
                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                  PS01260;
PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      produced by alternative splicing SPECIFICITY: Expressed in a vi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIGR00865;
                                                                                                                                                                                                                                                                                                                                                               Alternative
                                                                                                                             236
                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1MAZ
                                                                                                                             AA;
                                                                                                                                                                                                                                                                                                                                                                                  BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65; bcl-2; 1.
BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12.
                                                                                                                                                                      30
104
152
152
199
230
230
236
REYVHARLLRAGLSW----
                                                                                                                          26425
                                                             14
19
                                                         .5%;
                                                                                                                                                                                                                                                                                                                                                             splicing; Transmembrane; Mitochondrion;
                                                                                                                          , WM
                                                                                                                    BH3.

BH1.

BH2.

POTENTIAL.

CLEAVAGE (BY CASPASES) (BY SIMILARITY).

PHOSPHORYLATION (BY PKC).

DAFVELYGPSWRSPLFDFSWLSLKTLLSLALVGACITLGAYL

GHK -> VGACLVE (IN ISOFORM BETA).

MW; AABSEF6B0766BEOA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 isoforms; alpha (shown here) and beta;
                                         26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   is required for anti-apoptotic
                                     Score 127; DE
Pred. No. 2.4e
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         variety of tissues
-SAPERASPAPG--
                                                           DB . 4e-
                                                           1;
-05;
                                         58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ser-70
                                                                            Length 236;
                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             regulates
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   activity
                                     92;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCl
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                                     Gaps
61
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                                                                                                                                                                                                                                                                                                                                                                                                                                     "Molecular cloning and DNA sequence analysis of cDNA encoding chicken the homologue of the Bcl-2 oncoprotein.";

Biochim. Biophys. Acta 1132:109-113(1992).

C -!-FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoletic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAR-1).

C -!- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and BCl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAR-1 and RAF-1 (By similarity).
                                 This
                                                                                                                                                                                                                                                                                                                                                                                          -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=92379084; PubMed=1511008; Cazals-Hatem D.L., Louie D.C., Tanaka S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE=92375724; PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Apoptosis regulator Bcl-2.
BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-APR-1993
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q00709;
01-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE=B-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eguchi Y., Ewert D.L., isujamore ... the chicken "Isolation and characterization of the chicken and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9031;
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Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
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                                                                            TISSUE SPECIFICITY: In adult chicken expressed, in thymus, kidney, heart, ovary and brain, with the highest levels in the membryo, highly levels expressed in all tissu high levels in the bursa of Fabricius.

DOMAIN: The BH4 domain is required for anti-apoptotic active for interaction with RAF-1 (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ۲
                                                                                                                                                                                                                                                                                                                                                                                    membrane of the nuclear envelope and the endoplasmic TISSUE SPECIFICITY: In adult chicken expressed, in the second                            SWISS-PROT entry is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OR BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHICK
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(Rel. 25, Last sequence up
(Rel. 41, Last annotation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20:4187-4192(1992).
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tute of Bioinformatics
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neuronal organs in
                                                                                                                                                                                                                                                                                                                             in all tissues with
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      collaboration
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                                                                                                             _XENLA
                              01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator RI (XRI) (Fragment).
Xenopus laevis (African clawed frog).
                                                                                       AR1_XENLA
Q91827;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGRFAMS; TIGR00865; bc1-2; 1.
PROSITE; PS50062; BC12_FAMILY; 1.
PROSITE; PS01080; BH1; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
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PIR; S24390; S24390.
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entities requires a
          Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                         CONFLICT
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  (enopodinae;
                                                                                                                                                       180 HNWIQDNGGWDAFVELYGNSMRPLFDFSWISLKTILSLVLVGACITLGAYL
                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                            20 RSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP----
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                                                                                                                                                                            ATWLRRGGWTDVLKCV-VSTDPGFRSHW--
                                                                                                                                                                                                                      -GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTL
                                                                                                                                                                                                 AHGREVAVVEELERDGVNWGRIVAFFEEGGVMCVESVNREMSPLVDNIATWMTEYLNRHL
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                                                                                                                                                                                                                                                                                        RGYDNREIVL------KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D11382; BAA01978.1;
D11381; BAA01978.1;
Z11961; CAA78018.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             007817;
                                                                                                                                                                                                                                                                                                                                   38;
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                                                                                                                                                                                                                                                                                                                                            Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              on-profit institutions as long as its content is in no way and this statement is not removed. Usage by and for commercial equires a license agreement (See http://www.isb-sib.ch/announce/email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR003093;
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82
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Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                              25687 MW;
                                                                                                                                                                                                                                                                                                                                           12.9%;
16.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mitochondrion.
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                                                                                                                                                                                                                                                                                                                                   28;
                                                                                                                                                                                                                                                                                                                                             Score 113;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                        G #
                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.
E -> S (IN REF. 2
GSAAASEVPPAEGLRP
                                                                                                                                                                                                                                                                                                                                                                                                             (IN REF.
                                                                                                                                                                                                                                                                                                                                                                              5252555ACB6E4C3D, CRC64;
                                                                                                                                                                                                                                                                                                                                                                                         -> T (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                  228
                                                                                                                                                                                                                                                                                                                                 .00056;
les 67;
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                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                            -LVATLCSFGRFL 159
                                                                                                                                                                                                                                                                                                                                                                                                             2).
(P -> ARLLLVRCPRLRGCA
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                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
          BCLX_RAT STANDARD; PRT; 233 AA. P53563; Q62678; P70614; P70613; Q62836; Q6408 Q1-OCT-1996 (Rel. 34, Created) Q1-NOV-1997 (Rel. 35; Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator Bcl-x. BCLZLI OR BCLZL OR BCLZL OR BCLZL OR CRLA. (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; X82462; CAA57845.1;
HSSP; Q07817; 1MAZ.
InterPro; IPR002475; BCL2_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -i- SUBCELLULAR LOCATION: Membrane-bound (Potential).
-i- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AND ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-i- SIMILARITY: BELONGS TO THE BCL-2 FAMILY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Cloning, characterization and expression of two Xenopus cell-survival genes.";
Gene 158:171-179(1995).
-!- FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apoptosis;
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS01258; BH2; 1. PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=Head;
MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE; PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cruz-Reyes J., Tata J.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=8355
                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                         149 EMSPLLPRIQDWMVTYLETNLRDWIQSNGGWNGFL
                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                  68
                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                         32
                                                                                                                                                                                                                                                                                                                                   19 DRSPTDKELVAQ----AKALGREYVHARLLRAGLSWSAPERASPA-----
                                                                                                                                                                                                                    AQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL
                                                                                                                                                                                                                                                EERFRQAFSEISTQIHVTPGTAYARFAEVAGSLFQGGVNWGRIVAFFVFGAALCAESVNK
                                                                                                                                                                                                                                                                                                         DKYLTEQGWMAQSDLGSRALVEDLVRYKLCQRSL---VPEPSGAASCALHSAMRAAGDEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pro; IPR003093;
PF00452; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                 33;
                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR000712;
 Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                         228 AA;
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171
207
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186
227
 Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BCL2_family.
Bcl2_BH.
Bcl2_BH4.
                                                                                                                                                                                                                                                                                                                                                                               12.5%;
21.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                         25068 MW;
                                                                                                                                                                                                                                                                           --PG---GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQ
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                                                                                                                                                                                                                                                                                                                                                                26;
                                                                                                                                                                                                                                                                                                                                                                             Score 110; DB 1;
Pred. No. 0.0011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  BH1.
BH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                         C499D449A585F8A9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                   Q64087;
                                                                                                                                                                                         183
                                                                                                                                                                                                                    133
                                                                                                                                                                                                                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                    Q64128;
                                                                                                                                                                                                                                                                                                                                                                Indels
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                                                                                                                                                                                                                                                                             98
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use by modified
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STRAIN-Sprague-Dawley; TISSUE-Ovary;
MEDLINE-95129487; PubMed-7828536;
Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;
"Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulos cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xiong messenger ribonucleic acid levels.";
Endocrinology 136:232-241(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE-Brain;
Wesselingh S.L., David G
Submitted (JUN-1995) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "An additional form of rat Bcl-x, Bcl-xbeta, generated by a unspliced RNA, promotes apoptosis in promyeloid cells."; J. Biol. Chem. 271:13258-13265(1996).
                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Michaelidis T.M.;
Submitted (DEC-1994)
          entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Morikawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aritomi M., Kunishima N., Inohara N., Ishibashi Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-96278736;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-Thymus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
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NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Crystal structure of rat Bcl-xL.
                                                                                                                                                                                   cleaved protein, lacking the BH4 domain, activity (By Similarity).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                 DETECTABLE LEVEL OF BCL-X(S).

DOMAIN: The BH4 domain is required for anti-apoptotic activity.

The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.

PTM: Proteolytically cleaved by caspases during apoptosis. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity). Heterodimerization with BAX does not seem to required for anti-apoptotic activity (By similarity).
SUBGELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUC ENVELOPE (BY SIMILARITY).
ALTERNATIVE PRODUCTS: 3 ISOFORMS: BCL-X(L) (SHOWN HERE), AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
TISSUE SPECIFICITY: EXPRESSED IN MOST TISSUES. BCL-X(BETA) SPECIFICALLY EXPRESSED IN CEREBELLUM, HEART, AND THYMUS.
OVARY, THE PREDOMINANT FORM IS BCL-X(L), WITH A SMALL BUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S) and Bcl-x(beta) isoforms promote accurate.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cytochrome c, from the mitochondrial membrane. The Bcl-x(beta) isoforms promote apoptosis.
SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bcl-2 protein family.
                                                                                                                                   SWISS-PROT entry is
the Swiss Institute of Bioinformatics and the EMBL outstation - ppean Bioinformatics Institute. There are no restrictions on its non-profit institutions as long as its content is in no way and this statement is not removed. Usage by and for a requires a license agreement.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chem. 272:27886-27892(1997)
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EMBL/GenBank/DDBJ
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                                                                                                                                                                                                                                                                                                                                         domain, has pro-apoptotic
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(BH2)
(BH3)
(BH4)
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BCLX_CHICK
ID BCLX_C
AC Q07816
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EMBL; X82537; C
EMBL; U0579; A
EMBL; U72350; A
EMBL; U72349; A
EMBL; U34963; A
EMBL; S76513; A
  BCLX_CHICK (
Q07816; Q98908;
Q1-FEB-1995 (Rel
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InterPro; IPR000712; B
InterPro; IPR003093; B
InterPro; IPR004725; B
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VARSPLIC
VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIGRFAMS;
PROSITE; P
PROSITE; P
PROSITE; P
PROSITE; P
PROSITE; P
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DOMAIN
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DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGRFFAMS; TIGR00865; bc1-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Apoptosis; Mi
3D-structure
                                                                                                                                                                                                                                                                                                    115
                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                          66
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21 SPTDKELVAQAKALGREYVHARLLRAGLSWS------
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                                                                                                                                                                                            NDHLEPWIQENGGW
                                                                                                                                                                                                                                                                                                                                                                                                               PSWHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SQSNRELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGN
                                                                                                                                                                                                                                               RKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                    TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PS01260;
PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PS50062; BCL2_FAMILY;
PS01080; BH1; 1.
PS01258; BH2; 1.
PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mitochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             email to license@isb-sib.ch).
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129
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CAA57887.1;
AAA19257.1;
AAB17353.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAC60701.1; ALT_INIT.
AAC60702.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB17352.1;
AAA77686.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AĄ;
                                                                                                                                                                                                                                                                                                                                                       -EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFV
                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BH4_1; 1.
BH4_2; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12.2%;
17.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FSRK -> VRTTPLIVCEPLYCLSSVEITUCEFWSEGMYVED.
IDYSGDIPGLL (IN ISOFORM BCL-X(BETA)).
R -> Q (IN REF. 1).
F -> S (IN REF. 2).
A -> E (IN REF. 4).
I -> L (IN REF. 4).
A -> V (IN REF. 4).
A -> T (IN REF. 4).
A -> P (IN REF. 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alternative splicing; Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 107; DE
Pred. No. 0.00
25; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
MISSING (IN ISOFORM BCL-X(S))
                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2B62B6C63864BC8F CRC64;
                                                        229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----APERASPA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                               114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.
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(Rel. 31, Created)

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Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entre European Bioinformatics Institute. There are no restruct use by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Boise L.H., Gonzalez-Garcia M., Postema C.E., D
Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as
of apoptotic cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis regulator Bcl-X.
BCL2L1 OR BCLX OR BCL-X.
                                                                                                                                                                                                                                                                                                                      entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. (SHORT FORM).
MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gallus
             Apoptosis;
                                                                    PROSITE; PS01080;
PROSITE; PS01258;
PROSITE; PS01259;
                                                                                                           SMART; SM00265; BH4;
TIGRFAMS; TIGR00865;
PROSITE; PS50062; BC
                                                                                                                                        SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                   PIR; A47537; A47537.
HSSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                  modified and this statement is not removed.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              spermatogenesis.";
Mol. Reprod. Dev.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vilagrasa X., Mezquita C., Mezquit
"Differential expression of bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-Hubbard White Mountain; TimeDLINE-97264485; PubMed-9110311;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation updat
                                                                                                                                                                Pfam; PF00452; Bc1-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. (LONG FORM).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                          PROSITE;
                                                     PROSITE;
                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION. INTACT BHI AND BH2 DOMAINS ARE APOPTOTIC ACTIVITY (BY SIMILARITY).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH.
FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING. TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS WITH LYMPHOID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENVELOPE (BY SIMILARITY).

ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEVELOPMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74:597-608(1993).
                                                                                                                                                                                                                                                                               Z23110; CAA80657.1;
U26645; AAB07677.1;
                                                                                                                                                                                                                       IPR002475;
IPR000712;
                                                                                                                                                                                           IPR004725;
Transmembrane;
4 24
82 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dev. 47:26-29(1997)
                                       BH4_1; 1.
BH4_2; 1.
                                                                                 BH1;
BH2;
                                                                                                           65; bcl-2; 1.
BCL2_FAMILY;
                                                                                                                                                                                          BCL2_family.; Bcl2_BH.; Bcl2_BH4.; Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last annotation update)
                           Alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mezquita
вн4.
вн3.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and bcl·x during chicken
                           splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (BH2)
(BH3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BH4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (BH1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IN THE ANTI-APOPTOTIC
                                                                                                                                                                                                                                                                                                                                                   Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REQUIRED
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                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN.
DOMAIN.
DOMAIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                   bу
                                                                                                                                                                                                                                                                                                                                                                             restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PERINUCLEAR
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                                                                                                                                                                                                                                                                                                                                                                                            EMBL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HERE) AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Phasianinae;
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                                                                                                                                                                                                                                                                                                                                                                                                          a collaboration
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                                                                                                                                                                                                                                                                                                                                                                                             outstation
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RESULT
BCLX_MC
  ALD DITERMENT OF THE PROPERTY 
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCLX_MOUSE STANDARD; PRT; 2
Q64373; Q60657; Q60658; Q61338;
Q1-NOV-1997 (Rel. 35, Created)
Q1-NOV-1997 (Rel. 35, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Apoptosis regulator Bc1-x.
BCL2L1 OR BCL2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thompson C.B., Nunez G.;
"bc1-XL is the major bc1-x mRNA form of development and its product localizes
Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=2A4B;
Kamesaki H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                      SEQUENCE FROM N.A.
MEDLINE=97289584; PubMed=9144489;
Grillot D.A., Gonzalez-Garcia M.,
Ohta S., Seldin M.F., Nunez G.;
                                                                                                                                                                                                                                                                                                                                        MEDLINE=95052604; PubMed=7963517; Fang W., Rivard J.J., Mueller D.L., Behn Cloning and molecular characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=C57BL/6; TISSUE=Brain; MEDLINE=95331139; PubMed=7607090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kamesaki H., Michaud
Submitted (MAR-1995)
                                                                                                                                                apoptosis
                                                                                                                                                                                                                   MEDLINE=98051053;
                                                                                                                                                                                                                                    STRAIN=C57BL/6 X CBA;
                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (ISOFORM X(BETA)).
STRAIN=C57BL/6 X CBA; TISSUE=Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-Pre-B
                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. (ISOFORMS X(L);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gonzalez-Garcia M., Perez-Ballestero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10090;
'Genomic organization, promoter region analysis, and
                                                                                                                                                                                                                                                                                                                         Lymphocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99
                                                                                                                            novel Bc1-x isoform connected to the optosis in T cells."; munity 7:629-639(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4 LRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAPGGR
                                                                                                                                                                                               х. -F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VHRSSLEVHEIVRASD-----VRQALRDAGDEFELRYRRAFSDLTSQLHITPGTAYQ
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                                                                                                                                                                                          Weber G.F., Cantor H.;
                                                                                                                                                                                                                                                                                                   153:4388-4398(1994).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125
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206
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                                                                                                                                                                                                                PubMed=9390687;
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to the
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e EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23;
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ERFVDLYGNNAAAELRKGQETFNKWLLTGATVAGVLLLGSL
LSRK -> VRTALP (IN SHORT ISOFORM).
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                                          Duan L.,
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CRC64;
                                                                                                                                                                                                                                                                                                                                             bcl-x
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EMBL; X83574; CAA58557.1; -...
EMBL; L35049; AAA51039.1; -...
EMBL; L35048; AAA51040.1; -...
EMBL; U10102; AAA82174.1; -...
EMBL; U10101; AAA82173.1; -...
EMBL; U10100; AAA82172.1; -...
EMBL; U10100; AAA62172.1; -...
EMBL; U10100; AAA62172.1; -...
EMBL; U71000; AAA6041.1; -...
EMBL; U71000; AAA6041.1; JOINI
HSSP, P53563; IAF3.
                                                                                                                                               Pfam; PF00452; Bc1-2; 1.
Pfam; PF02180; BH4; 1.
SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGRFAMS; TIGR00865; bc1-2; 1.
PROSTIE; PS50062; BCL2_FAMILY; 1
                                                                                                                                   TIGREAMS;
PROSITE; F
PROSITE; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               localization of the mouse bcl-x gene.";
J. Immunol. 158:4750-4757(1997).
-i- FUNCTION: Potent inhibitor of cell
DOMAIN
DOMAIN
                                                                                  PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This
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                                 Apoptosis;
DOMAIN
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                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (SUBUNIT: Bcl-x(L) forms heterodimers with BAX does not seem to be similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).

SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).

ALTERNATIVE PRODUCTS: 4 ISOTORMS; BCX-X(L) (SHOWN HERE), BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         with other Bcl2 family members and for repression of cell PTM: Proteolytically cleaved by caspases during apoptosis similarity). The cleaved protein, lacking the BH4 domain, apoptotic activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPLICING.

TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTABRAIN, THYMUS, BONE MARROW, AND T LYMPHOCYTES THAT HAVE BEEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTIVATED.

DEVELOPMENTAL STAGE: BCL-X(BETA)IS 1
POSTNATAL TISSUES, WHEREAS BCL-X(L)
POSTNATAL TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN: The BH4 domain is required for anti-apoptotic The BH1 and BH2 domains are required for both heterod with other Bc12 family members and for repression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage dependent anion channnel (VDAC) by binding the it and preventing the release of the caspase activator,
                                                                                                                                                                                                                                                                                                                           MGI:88139;
                                                                                                                                     PS01080;
                                                                                  PS01260;
                                                                                                   PS01259;
                                                                                                                                                                                                                                                   IPR002475; BCL2_family.
IPR000712; Bc12_BH.
IPR003093; Bc12_BH4.
IPR004725; Bc12_reg.
                                                 Mitochondrion; Alternative splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                         Bc121.
                                                                BH4_1;
BH4_2;
                                                                                                                                     BH1;
                                                                                                     внз;
 24
100
148
                                                                                                                                                                                                                                                                                                                                                          JOINED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (See http://www.isb-sib.ch/announce/
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                                               Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HOWN HERE), BCL-X(S),
BY ALTERNATIVE
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non-profit institutions as long and this statement is not removed. requires a license agreement (See an email to license@isb-sib.ch).

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http://www.isb-sib. Usage

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Best Local
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077737:
15-JUL-1999 (Rel. 38, Create
15-JUL-1999 (Rel. 41, Last:
15-JUN-2002 (Rel. 41, Last:
Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
                                                                                                                                                                                                                                                                       DOMAIN
TRANSMEM
VARSPLIC
VARSPLIC
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                                                                                                                                                                                                                                                                                                                                                                                   Bartling
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalia;
                                                                                                                                                                                                                                                                                                                                                                    Bartling B., Hoffmann J., Holtz J., Quantification of cardioprotective
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125 QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66
                                                                                                                                                                      ENVELOPE (BY SIMILARITY).

ENVELOPE (BY SIMILARITY).

DOWAIN: The BH4 domain is required for anti-apoptotic acti
The BH1 and BH2 domains are required for both heterodimeri
with other Bc12 family members and for repression of cell
with other Bc12 family members are graphically cleaved by caspases during apoptosis
                                                                                        PTM: Proteolytically cleaved by caspases during the similarity). The cleaved protein, lacking the apoptotic activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                      similarity). Heterodimerization with BAX does not seem required for anti-apoptotic activity (By similarity). SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l Similarity
17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                        Metazoa; Chordata; Craniata; Vertebrata; Eutheria; Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     233
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Last annotation updat
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Pred. No. 0.00
15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     X(DELTA-TM)).
; 24D2AC79887E072E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCL-X(BETA)).
LYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSLFSRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FSRK -> VRTTPLVCPPLACVSLLCEHP (IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -> GHDCGWCGSAGLTLQSEVTRH (IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                     gene expression in porcine
                                                                                                                                                                                                                                                                                                                                                                                   Schulz R., Heusch G., Darmer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 233;
                                                                                                    DOMAIN.
DOMAIN.
DOMAIN.
                                                                                                                                                                ng apoptosis
BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                           Euteleostomi;
Sus.
                                                                                                                                                                                                                                        PERINUCLEAR
                                                                                                                                                                                                                activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ISOFORM
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                                                                                                                                                                                          death.
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RESULT 12

BCLX_H

BCLX_H

AC Q07817

DT Q1-FEB

CC ENLARY

CC Mammal

OX NCBI_T

RN [1]

RP SEQUEN

RA GUSL-W

RT Of apc

RL Cell 7

RN [2]

RP SEQUEN

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Best Local :
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SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; AJ00
HSSP; Q078
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q07817; Q92976;
01-FEB-1995 (Rel. 31, Created)
01-FEB-1995 (Rel. 31, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator Bcl-x.
BCLZL OR BCLX.
Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                   Boise L.H., Gonzalez-Garcia M., Postema C.E., Din
Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as a
of apoptotic cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01250; BH4—1; 1.
PROSITE; PS50063; BH4—2; 1.
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)). MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SMART; SM00337;
SMART; SM00265;
                                                                                                                              MUTAGENESIS OF GLY-138, AND HETERODIMERIZATION MEDLINE=95372373; PubMed=7644501;
                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCLX_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
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                                                               Korsmeyer S.J.;
"Multiple Bcl-2 family members demonstrate selective
                                                                                                          Sedlak T.W., Oltvai Z.N.,
                                                                                                                                                                                                  Submitted
                                                                                                                                                                                                                      Inohara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        185 NGGW 188
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                                                                                                                                                                                                                                                                                     74:597-608(1993).
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17; Conserv
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                                                                                                                                                                                                                    FROM N.A. (ISOFORM BETA).
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                                                                                                                                                                                               (OCT-1996)
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129
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180
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233 AA;
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                        Acad. Sci.
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26061 MW;
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148
195
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26.6%;
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                      U.S.A. 92:7834-7838(1995).
                                                                                                                                                                                             the EMBL/GenBank/DDBJ databases
                                                                                                       Yang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transmembrane
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 104;
Pred. No. 0
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18BF6FA0441912B2 CRC64;
                                                                                                          E)
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                                                                                                          Wang K., Boise L.H., Thompson C.B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            233
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.0043;
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                                                                                                                                                                                                                                                                                                                                                                      Ding L., Lindsten T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 233
                                                                                                                                                                                                                                                                                                                              dominant regulator
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EMBL;

Z23116; CAA80662.1; Z23115; CAA80661.1; U72398; AAB17354.1;

EMBL;

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http://www.isb-sib.

Usage

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CLEAVAGE BY CASPASES, AND MUTAGENESIS MEDILINE-98118550; PubMed=9435230; Clem R.J., Cheng E.H.-Y., Karp C.L., I Takahashi A., Kastan M.B., Griffin D.I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=97172562; PubMed=9020082;
Sattler M., Liang H., Nettesheim D.,
Eberstadt M., Yoon H.S., Shuker S.B.,
Thompson C.B., Fesik S.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ng S.L., Fesik S.W.;
"X-ray and NMR structure of human Bcl-xL,
cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Bax-independent inhibition of apoptosis Nature 379:554-556(1996).
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Muchmore S.W., Sattler M., Liang H., Meadows R.P., Hayoon H.S., Nettesheim D., Chang B.S., Thompson C.B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Structure of Bcl-xL-Bak peptide complex: recognition between regulators of apoptosis."; Science 275:983-986(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cheng E.H.-Y., Levine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Modulation of cell death bx Bcl-xL through caspase interaction.";
Proc. Natl. Acad. Sci. U.S.A. 95:554.559(1998).
-i-FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Korsmeyer S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hardwick J.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nature 381:335-341(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    K-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS), AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRUCTURE BY NMR OF 1-209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=96170038;
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activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3)
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                       ALTERNATIVE PRODUCTS: 3 ISOFORMS; BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS
THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING
LYMPHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING
LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.
DOMAIN: The BH4 domain is required for both heterodimerization
with other Bcl2 family members and for repression of cell death.
PTM: Proteolytically cleaved by caspases during apoptosis. The
                                                                                                                                                                                                                                                                                                                                                                                                                         apoptotic activity.

SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  isoform promotes apoptosis.
SUBUNIT: Bcl-x(L) forms het
                                                                                                                                                       cleaved protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Heterodimerization with BAX does
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cytochrome c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from the mitochondrial membrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PubMed-8596636;
                                                                                                                                                    lacking the BH4 domain,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        heterodimers
BAX does not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kirsch D.G., Ueno K.,
.E., Earnshaw W.C., Veliuona M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Meadows R.P.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to be
                            DOMAIN.
DOMAIN.
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                                                                                                                                                    pro-apopt@tic
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S.L.,
                                                                                                                                                                                                                                                                                                         CONTAINING
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Best Local :
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InterPro; IPR000712; Bcl2_BH.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_reg.
Pfam; PF00452; Bcl-2; 1.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
SMART; SM00337; BCL; 1.
TIGRFAMS; TIGR00865; bcl-2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
                                                                                 BAXB_HUMAN STAN
Q07814;
Q1-FEB-1995 (Rel. 3
Q1-FEB-1995 (Rel. 3
Q1-FEB-1995 (Rel. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MUTAGEN
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS50062;
PROSITE; PS01080;
PROSITE; PS01258;
PROSITE; PS01259;
                                                                                                                                                                        HUMAN
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VARSPLIC
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MUTAGEN
                                                                   Apoptosis
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   Mammalia;
               Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genew;
                                   Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            D-structure.
                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                              125
                                                                                                                                                                                                                                                                                                                                              66
                                                                                                                                                                                                                                                                                                                                         EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                           NGGW
                                                                                                                                                                                                                                                                             RGGW 129
                                                                                                                                                                                                                                                                                                           QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATYLNDHLEPWIQE
                                                                                                                                                                                                                                                                                                                                                                                l Similarity
17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HGNC:992; BCL2L1.
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PS01260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PS50063;
                                                                 95 (Rel. 31, Last sequence up 02 (Rel. 41, Last annotation regulator BAX, cytoplasmic
                                                                                                                                                                                                                                           188
Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-APR-97.
21-APR-97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   233 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189
70
                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      138
148
156
176
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135
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129
180
210
61
126
189
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                        STANDARD;
                                                                                 . 31, Created)
. 31, Last sequence 41, Last annotations.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                внз;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              вн2;
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70
26049
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148
156
176
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137
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100
148
195
226
61
188
233
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                                                                                                                                                                                                                                                                                                                                                                                              11.7%;
26.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BH3.
BH1.
BH2.
BH2.
BY CASPASE-1.
CLEAVAGE BY CASPASE-1.
AUSSING (IN ISOFORM BCL-X(S)).
MISSING (IN ISOFORM BCL-X(S)).
YOUTH CASPASE BCL-X(S)).
YOUTH CONTROL 
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Œ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alternative splicing; Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                              15;
                                                                                                                                                                                                                                                                                                                                                                              Score 103; DB
Pred. No. 0.00
15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTIVITY.
G->A: NO
G->E: NO
D->A: NO
D->A: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                WD->GA: REDUCES ANTI-APOPTOTIC ACTIVEY ABOUT HALF.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE
G->A (IN REF. 1; CAA80661).
                                                                                                                                                                                                                                                                                                                                                                                                                                                 -> A (IN REF. 1; CAA806
E09D3CDD851AE9BE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO HETERODIMERIZATION WITH BAX.
NO HETERODIMERIZATION WITH BAX.
NO EFECT ON CASPASE-1 CLEAVAGE.
NO EFECT ON CASPASE-1 CLEAVAGE.
                                                                                                                                                                                                                                                                                                                                                                                              103; DB 1;
No. 0.0054;
                                                                   on update)
c isoform
                                                                                                                                                        218
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OF ANTI-APOPTOTIC
                                                                      beta
                                                                                                                                                                                                                                                                                                                                                                                32;
                                                                                                                                                                                                                                                                                                                                                                                                            Length 233;
                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTIVITY
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                                                                                                                                                                                                                                                                                            Query Match 11.9
Best Local Similarity 22.7
Matches 34; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                     Apoptosis;
DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCL-2 heterodimerizes in vivo with accelerates programmed cell death."; Cell 74:60-619(193).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002475; BCL2_family.
InterPro; IPR00712; BCl2_BH.
Pfam; PF00452; BCl-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSSP; Q07817; 1MAZ.
Genew; HGNC:959; BAX.
MIM; 600040; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; L22474; AAA03620.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID~9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; B47538; B47538.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-93364978; PubMed-8358790;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FISSUE=B-cel
131
                                                102
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                                                                                                                                               76
                                                                                                                                                                                                                                              22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TISSUES.

DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BAK, BAD ANI
BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR INTERACTION
WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: CYtoplasmic.
ALTERNATIVE PRODUCTS: THE MEMBRANE ISOFORM &
TOPPORMS. BETA, GAMMA AND DELTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HOMOLOG E1B 19K PROTEIN.
SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS TOGETHER WITH BCL-2, E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: ACCELERATES PROGRAMMED CELL DEATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANTAGONIZING THE APOPTOSIS
                                                                                                                                                                                                                               PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLG---
ELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                                              AMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK
                                                                                            DSNMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLKALCTKVP
                                                                                                                                                                                                PTSSEQIMKTGALLLQGFIQDRAGRMG---GEAPELALDPVPQDASTKKLSECLKRIGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PS01080; BH1; 1.
PS01258; BH2; 1.
PS01259; BH3; 1.
PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                           59
98
150
218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                     Alternative splicing.
59 73 BH3.
98 118 BH1.
150 165 BH2.
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                                                                                                                                                                                                                                                                                                                                                                                              24220 MW;
                                                                                                                                                                                                                                                                                                                      11.5%;
22.2%;
                                                                                                                                                                                                                                                                                               25;
                                                                                                                                                                                                                                                                                     Score 101; DB 1; Le
Pred. No. 0.0078;
Pred. no. 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Korsmeyer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REPRESSOR BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                 F69DCD70F960192F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           er S.J.;
a conserved
                                                                                                                        --ITWGKVVSLYSVAAGLAVDCVRQAQP 101
                                                134
163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          There are no restrictions ing as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OR
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                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Y BINDING
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                                                                                                                                                                                                                                                                                                                                                218;
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BCLW_MOUSE
BCLW_MOUSE
AC P70345;
DT 01-NOV-1997
DT 101-NOV-1997
DT 15-JUN-2002
DE APOPTOSIS re
GN BCL1212 OR BC
OS MUS MUSCULLUS
OC WCBL_TAXID=1
RN [1]
RN Gibson L., F
RA Jenkins N.A.
RT "BC1-w, a n.
Oncogene 13
RN [2]
RN Gibson L., F
RA Jenkins N.A.
RT "Bc1-w, a n.
Oncogene 13
RN [2]
RN Gibson L., F
RA Jenkins N.A.
RT "Bc1-w, a n.
Oncogene 13
RN [2]
RN SEQUENCE FR
SEQUENCE FR
CC STRAIN=C57B
RN GLINE-991
RA ROSS A.J.91
DR FAM; PF004
DR FAM; SMOITE; P;
DR PROSITE; P;

     Best Local
Matches
                            Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                 MGD; MGI:108652; Bc1212.
InterPro; IPR002475; Bc12_fami
InterPro; IPR000712; Bc12_BH.
InterPro; IPR003093; Bc12_BH4.
Pfam; PF00452; Bc1-2; 1.
Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-C57BL/10J;
MEDLINE=98160183; PubMed=9500547;
Ross A.J., Waymire K.G., Moss J.E., Parlow A.F.,
Russell L.D., Macgregor G.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              use by non-profit institutions as long modified and this statement is not removed entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gibson L., Holmgreen S.P., Huang D.C., Bernard O., Copeland N.G., Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.; "bcl.w, a novel member of the bcl-2 family, promotes cell survival."; Oncogene 13:665-675(1996).
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01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                        SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
MEDLINE=96358615; PubMed=8761287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                PROSITE; PS50063;
                                                                                                                                                                                                                                                                                                   PROSITE; PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; U59746; AAB09056.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Testicular degeneration in Bclw-deficient mice.";
Nat. Genet. 18:251-256(1998)
-i- FUNCTION: PROMOTES CELL SURVIVAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis regulator Bcl-W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCL2L2 OR BCLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN. SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: Cytoplasmic.
TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL
IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AND SALIVARY GLAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q07817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AF030769; AAB86430.1; -.
     27; Conser
                                                                                                                                                                                                                                                          PS01258;
PS01260;
                                                                                                     193
     Conservative
                                                                                                                               136
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104
151
20790 h
                                                                                                                                                                                                                             BH4_2;
                                                                                                                                                                                                                                                                               вн2;
                                                                                                                                                                                                                                                                                                                                BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chordata;
Rodentia;
                          11.4%; 24.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bc12_BH4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .'
                                                                                                     MΨ;
Score 100; DB 1;
Pred. No. 0.0086;
9; Mismatches 63
                                                                                                                             BH2
                                                                                                                                                       BH4
BH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                   36CA185F5945DFB4 CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A
     63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Usage
                                              Length 193;
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Gaps
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Query Match
Best Local S
Matches 17
                                                                                                                                                                                                                                                                                 R InterPro; IPR003093; Bc12_BH4.
q InterPro; IPR003093; Bc12_BH4.
q InterPro; IPR004725; Bc12_reg.
q Pfam; PF00452; Bc12_1
pfam; PF02180; BH4; 1
SMART; SM00337; BCL; 1.
SMART; SM00365; BH4; 1.
TIGREAMS; TIGR00865; bc1-2; 1.
PROSITE: Pc01000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR11_XENLA
Q91828;
Q91828;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Cloning, characterization and expression of two xenopus bgl-2-1 cell-survival genes.";
Gene 158:171-179(1995).
I- FUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH.
I- SUBCELLULAR LOCATION: Membrane-bound (Potential).
I- BEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADBOLES AN ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
I- SIMILARITY: GONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
I- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                      TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; X82461; CAA57844.1; -. HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleost
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1997 (Rel. 35, Created
01-NOV-1997 (Rel. 35, Last sen
15-JUN-2002 (Rel. 41, Last an
Apoptosis regulator R11 (XR11
                                                                                                                                                                                                                               PROSITE; PS01258; BH2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cruz-Reyes J., Tata J.R.;
                                                                                                                                                        DOMAIN
                                                                                                                                                                                   Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=95331613; PubMed=7607538;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
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     l Similarity
17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR002475;
IPR000712;
                                                                                              181
204
                                                                                                                                                                                                          Transmembrane.
     Conservative
                                                                                                                                                      101
152
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                                                                                                    167
198
23379
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                            11.3%;
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     15;
                            Score 99;
Pred. No.
  Pred. No. 0.01
5; Mismatches
                                                                                                                                                        BH2
                                                                                                                              POTENTIAL.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                      3BFC6BE6DDA4CA03 CRC64
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     32;
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                                               Length 204
     Indels
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Minimum |
Maximum |
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Maximum Match 100%
Listing first 45 summaries
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Sequence:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
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      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB seq length: 0
DB seq length: 2000000000
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1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
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## ALIGNMENTS

RESULT 153744

gene bcl-2 protein - rat

G:Species: Rattus norvegicus (Norway rat)

C:Species: Rattus norvegicus (Norway rat)

C:Species: Ray-1998 #sequence\_revision 29-May-1998 #text\_change 16-Jul-19

C:Accession: I53744

R:Sato, T.: Irie, S.: Krajewski, S.: Reed, J.C.

Gene 140, 291-292, 1994

A:Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.

A:Reference number: I53744; MUID:94193015; PMID:8144041

A:A:Ccession: I53744

A:Status: preliminary: translated from GB/EMBL/DDBJ

A:Molecule type: mRNA

A:Residues: 1-236 <RES>

A:Ccoss-references: GB:L14680; NID:9408946; PIDN:AAA53662.1; PID:9408947

#text\_change 16-Jul-1999

A; Title A; Refer A; Acces A; Statu	C; Acces R; Equeb	RESULT TVHUA1 transfo	Qy , 1 Db 1	Qy Db 1	Qy	dd Yo	Query Ma Best Loc Matches	C; Superfamily
NUCLEIC ACIDS Res. 20, 4187-4197, 1992 A;Title: Isolation and characterization of the chicken bcl-2 gene: expression in a A;Title: Isolation and characterization of the chicken bcl-2 gene: expression in a A;Reference number: A37332; MUID:92375724; PMID:1508712 A;Accession: C37332 A;Status: nucleic acid sequence not shown; not compared with conceptual translation	C;Detries: nomo sapiens (man) C;Date: 31-Dec-1988 #sequence_revision 07-Jun-1996 #text_change 15-Oct-1999 C;Accession: C37332; A29409; S02452; A24428; A27622; B27622 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.	RESULT 2 Transforming protein bcl-2, splice form alpha - human	118 TLATWLRRRGGWTDVLKCV-VSTDDGFRSHWL-VATLCS 154	62GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGGEVRK 117	62	28 VAQAKALGREYVHARLLRAGLSWSAPERASDAPG61	Query Match 15.3%; Score 134; DB 2; Length 236; Best Local Similarity 20.5%; Pred. No. 7.7e-06; Matches 45; Conservative 24; Mismatches 58; Indels 92; Gaps	C;Superfamily: bcl transforming protein

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C; Keywords: alternative
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Cell 47, 19-28, 1986
A;Title: Cloning and structural analysis of cDNAs for bcl-2
A;Reference number: A24428; MUID:87002488; PMID:2875799
A;Accession: A24428...
                 RESULT 3
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BCL-2 - rat (fragment)
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A;Cross-references:
A;Map position: 18q2
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A; Residues: 1-6,'S',8-58,'T',60-128,'C',130-239 <HUA2>
A; Note: the sequence was determined from the germline gene
A; Note: the sequence was determined from the germline gene
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A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1;
R;Hua, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.;
Oncogene Res. 2, 263-275, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-58, 'T',
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A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Cross-references: GB:M13994; NID:g179366; PIDN:AAA51813.1; P
A; Note: this sequence has been corrected in reference A37332
R; Seto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett,
EMBO J. 7, 123-131, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Note: this report is a correction R;Tsujimoto, Y; Croce, C.M. Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986 A;Title: Analysis of the structure, transcripts, and protein A;Reference number: A29409; MUID:86259760; PMID:3523487 A;Accession: A29409
  C; Species:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Residues: 1-58, 'T', 60-239 <HUA>
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Residues: 1-239 <EGU>
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                                                                                                                                                                     DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                             AFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                       LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
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    Rattus
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5; Mismatches
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Biochem. Biophys. Res. Commun. 275, 899-903, A:Title: Cloning and functional analysis of A:Reference number: JC7383
A:Contents: Ovary
A:A:Ccession: JC7383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999 (C;Accession: 167432 R.Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L. Endocrinology 136, 232-241, 1995 A.Title: Expression of members of the bcl-2 gene family in the immature rat onstitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels. A.Reference number: I53295; MUID:95129487; PMID:782836 A.Recession: 167432
                                                                                                   DЬ
                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B-cell lymphoma 2 protein - Chinese hamster C;Species: Cricetulus griseus (Chinese hams C;Date: 17-Nov-2000 #sequence_revision 17-N C;Accession: JC7383
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JC7383
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C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                  C; Comment: This C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:U34964; C;Superfamily: bcl transforming
                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Residues: 1-236 < TOM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Tomicic, M.T.; Christmann, M.; Kai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
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Best Local
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                                                                                                                                                                                                                                                              Local
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                                                                                                   VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                       MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HLHTWIQDNGGWDAFVELYGPSMRPLFDFSWQSLKTLLSLALVGACITLGAYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TLATWLRRRGGWTDVLKCV-VSTDPGFRSHW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRRAPTPGIFSFQPESNRTPA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VAQAKALG-----REYVHARLLRAGLSW----SAPERASPAPG------
TLATWLRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS
                              FTARGREATVVEELERDGVNWGRIVAFFEEGGVMCVESVNREMSPLVDNIALWMTEYLNR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FTARGRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMYPLVDNIALWMTEYLNR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                   B-cell
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                                                                                                                                                                                                                                                              Similarity
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                                                             -GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
                                                                                                                                                                                                                                                                                                                                 bcl
                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                            Conservative
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                                                                                                                                                                                                                                                                                                               lymphoma;
                                                                                                                                                                                                                                                                                                                                 transforming
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                                                                                                                                                                                                                                                                                                                                                                                    has anti-apoptotic function,
                                                                                                                                                                                                                                                            14.6%;
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18.9%;
                                                                                                                                                                                                                                                                                                               ing protein ovary
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kaina, B.
75, 899-903,
                                                                                                                                                                                                                                                            Score 128; DB 2; Pred. No. 3.1e-05;
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Pred. No. 2.
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                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hamster)
17-Nov-2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           encoding
154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -LVATLCSFGRFL 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #text_change
                                                                                                                                                                                                                                                                           Length 236;
                                                                                                                                                                                                                                                                                                                                                                                    and supports cell survival.
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transforming protein bcl-2; splice form beta - human
N:Alternate names: apoptosis regulator bcl-2
C:Species: Homo sapiens (man)
C:Date: 31-Dec:1988 #sequence_revision 31-Dec:1988 #text_change 15-Oct-1999
C:Accession: B29409; I52566; D37332
R:Tsujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A:Title: Analysis of the structure, transcripts, and protein products of bcl
A:Reference number: A29409; MUID:86259760; PMID:3523487
A:Accession: B29409
A;Molecule type: mRNA
A;Residues: 1-205 <TSU>
A;Residues: 1-205 <TSU>
A;Cross-references: GB:M13995; NID:g179368; PIDN:AAA51814.1; PID:g179369
R;Tanaka, S.; Louie, D.C.; Kant, J.A.; Reed, J.C.
Blood 79, 229-237, 1992
A;Title: Frequent incidence of somatic mutations in translocated BCL2 oncogenes of nc
A;Reference number: I52566; MUID:92096610; PMID:1339299
A;Accession: I52566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A:Molecule type: DNA
A:Residues: 1-33,'E',34-220,'AL',223-236 <EGU>
C:Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: GB:L31532; GB:M16506; NID:g468336; PIDN:AAA37282.1; PID:g387109 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 Nucleic Rolation and characterization of the chicken bcl-2 gene: expression in a Na;Reference number: A37332; MUID:92375724; PMID:1508712 A;Accession: E37332
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Introns: 192/3
C; Superfamily: bcl transforming protein
C; Keywords: alternative splicing; mitochondrion; transforming protein;
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A; Residues: 1-236 <NEG>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      118 TLATWLRRRGGWTDVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 FTARGRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match 14.5%;
Local Similarity 19.6%;
es 43; Conservative 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----GRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26;
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Pred. No. 3.9e-05;
6; Mismatches 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 236;
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                                                                                                                                                                                                                                                                                                                products of bcl-2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92;
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_	A;Status: translated from GB/EMBL/DDBJ	
	A; Residues: 1-131 <tan>.</tan>	
	A;Cross-references: GB:S72602; NID:g241046; PIDN:AAD14111.1; PID:g4261811 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.	
	is Res. 20, 4187-4192, 1992 blation and characterization of the chicken	a a
	PMID:1508712	
	Status: preliminary; nucleic acid sequence not s Molecule type: DNA	
omo l	A;Residues: 1-33,'E',34-95,'T',97-109,'R',111-205 <egu> C;Genetics: A:Gene: GDR:RCT2</egu>	
	- O +	
	olocks apoptosis in hematopoietic cells bcl transforming protein arnative splicing; apoptosis; B-cell lymphoma; follicular lymphoma;	pr
tra	Query Match 14.2%; Score 125; DB 1; Length 205; Best Local Similarity 17.9%; Pred. No. 5.3e-05; Matches 32; Conservative 22; Mismatches 39; Indels 86; Gaps 2;	
	Qy 37 EYVHARLLRAGLSWSAPERASDAPG	
pro	Qy 62GRLAEVCTV 70  Db 77 APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136	
	Qy 71 LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 129 	
	RESULT 7  TVMSB1  transforming protein bc1-2-beta - mouse C;Species: Mus musculus (house mouse) C;Species: J1-bec-1988 #sequence_revision 31-bec-1988 #text_change 18-Jun-1999 C;Accession. B25660	
	ni, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M. 987	
	Molecular analysis of mbcl-2: structure and expression of the murine gene noe number: A90893; MUID:87187643; PMID:3032455  10	bo
	<pre>C;Genetics: A;Gene: BCL2 C;Superfamily: bcl transforming protein C;Keywords: alternative splicing; transforming protein</pre>	
	Query Match 14.1%; Score 124; DB 1; Length 199; Best Local Similarity 19.0%; Pred. No. 6.4e-05; Matches 38; Conservative 24; Mismatches 46; Indels 92; Gaps 4;	
gene	OY 28 VAQAKALG	
	Qy 62 61	
	Db 61 VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120	
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_	FTABCREATVVERT. FROM VALUE TVAFFEROCVMCVERVCUTVUTAL WATER LUB	

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TLATWLRRRGGWTDVLKCVV

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185 NGGWVRTKPLVCPFSLASGQRS

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A;Title: Identification of a human cDNA encoding a novel bcl-x isoform. A;Reference number: JE0203; MUID:98340865; PMID:9675101
A;Accession: JE0203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          apoptosis regulator bcl-x isoform - human
N;Alternate names: h-bcl-xbeta
C;Species: Homo sapiens (man)
C;Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
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C; Superfamily: 1
                                                                                                                                                                                                                                                                                                                      A; Molecule type: mRNA
A; Residues: 1-227 <BAN>
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R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
                                                                                                                                                                                                                                                              A; Gene: bcl-x
                                                                                                                                                                                                                                                                                C; Genetics
                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:U72398; NID:g1622940; PIDN:AAB17354.1;
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A; Residues: 1-216 <EGU>
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Nucleic Acids Res. 20, 4187-4192, 1992
A;Title: Isolation and characterization of the chicken bcl-2
A;Reference number: A37332; MUID:92375724; PMID:1508712
A;Accession: B37332
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126 RGGW--TDVLKCVVSTDPGFRS 145
                                                      125 QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATYLNDHLEPWIQE 184
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                                                                                           EVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HNWIQDNGGWVRACASLSST----GGWLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATWLRRRGGWTDVLKCVVSTDPGFRSHWLV 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AHGRFVAVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHL 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                \tt HHRPEPPGSAAASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP----
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                                                                                                                                                        Similarity
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bcl transforming protein
                                                                                                                                       Conservative
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                                                                                                                                                                                                                transforming protein
                                                                                                                                                   13.0%; Score 114; DB 2; 29.3%; Pred. No. 0.00074;
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16.7%;
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Pred. No. 0.00028;
5; Mismatches 58;
                                                                                                                                       Mismatches
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                                                                                                                                                                          Length 227
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C;Superfamil
C;Keywords:
                                                                        A; Introns: 125, C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Species: Rattus norvegicus (Norway rat)
C;Date: 07-May-1995 #sequence_revision 01-Sep-1995
C;Accession: S51761; S51762
                                                                                                                                                                                                                                                                                                                                                                                 submitted to the EMBL Data A; Reference number: S51761
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                                                                                                                                 A; Experimental source: embryonic; br. A; Note: smaller form due to splicing
                                                                                                                                                                      A;Residues: 1-125,189-233 <MI2>
A;Cross_references: EMBL:X82537; NID:g607176; PIDN:CAA57887.1;
                                                                                                                                                                                                                                                A; Experimental source: A; Accession: S51762
                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-233 <MIC>
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C;Species: Gallus gallus (chicken)
C;Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 23-Feb-1997
C;Accession: A37332; S35453
                                                                                                                                                                                                           A; Molecule type: DNA
                                                                                                                                                                                                                              A; Status: preliminary
                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:X82537; NID:g607176; PIDN:CAA57886.1; PID:g607177
                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary
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A; Residues: 1-233 <EGU>
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       Matches
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   Local Similarity
nes 33; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTL 119
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                     12.1%;
17.0%;
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   25;
                   Score 106; DB 2;
Pred. No. 0.0048;
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Pred. No. 0.
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PMID:1508712
                                         DB 2;
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                                     Length 233;
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   92;
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A; Gene:
C; Superf
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                       bcl-x transmembrane deleted - mouse
C;SpecLes: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02
C;Accession: I49057
R;Fang, W.; Rivard, J.J.; Mueller, D.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Residues: 1-190 <BOI>
A;Cross-references: GB:Z23110; GB:L20120; NID:g510898; PIDN:CAA80657.1; C;Superfamily: bcl transforming protein
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A:Accession: A47537
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C;Genetics:
                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-214 < RES>
                                                                                                                                                                                    A; Reference number: I49055; MUID:95052604; PMID:7963517 A; Accession: I49057
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                   Query Match
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                                                                                                                                                                                                                                          Immunol. 153, 4388-4398,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116 RKTLATWLRRRGGW 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123 LRRRGGW 129
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Local Similarity
                                                     bcl-x-long
family: bcl
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 LRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAPGGR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SQSNQELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1-190 <BOI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                     transforming protein
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                                                                                                             EMBL:U10102; NID:g506649; PIDN:AAA82174.1; PID:g506650
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12
26
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                                                                                                                                                                   from
Score 105; DB 2; Pred. No. 0.0055;
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                                                                                                                                                                 GB/EMBL/DDB
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                                                                                                                                                                                                                                                             Behrens,
                                                                                                                                                                                                                                                             T.W.
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                   Length 214;
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A; Residues: 1-233 <RES>
A; Cross references: EMBL:Ul0101; NID:g506647; PIDN:AAA82173.1;
R; Kramesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.
submitted to the EMBL Data Library, November 1994
A; Description: IL-5 inhibits anti-IgM-induced apoptosis in an i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      bcl-x long - mouse
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J. Immunol. 153, 4388-4398, 1994
A;Title: Cloning and molecular characterization of mouse A;Reference number: I49055; MUID:95052604; PMID:7963517
A;Accession: I49056
                                                                                                                                                                                                                                                                                                                                                  transforming protein (Bcl-2) homolog - chicken C; Species: Gallus gallus (chicken) C; Date: 13-Jan-1995 #sequence_revision 13-Jan-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
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C:Superfamily: bcl transforming
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                                                                                                                                                                                                                                                     R;Cazals-Hatem, D.L.; Louie, D.C.; Tanaka, S.; Reed, J.C. Biochim. Biophys. Acta 1132, 109-113, 1992 A;Title: Molecular cloning and DNA sequence analysis of cA;Reference number: S24390; MUID:92379084; PMID:1511008
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A; Residues: 1-233 <KAM>
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A; Residues: 1-233 < RE
                                                                                                                A;Cross-references: EMBL:Z11961; NID:g62969; PIDN:CAA78018.1; PID:g62970 C;Superfamily: bcl transforming protein C;Keywords: mitochondrion; transmembrane protein
                                                                                                                                                                           A; Molecule type: mRNA
A; Residues: 1-232 <CAZ>
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A; Accession: S52866
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RSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP-
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17; Conserv
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Pred. No. 0.006;
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Oy 61
Db 180 NWIQDNGGWDAFVELYGNSMRPLFDFSWISLKTILSLVLVGACITLGAYL 229
Search completed: April 29, 2003, 11:26:35 Job time : 12.6527 secs

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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
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Maximum DB
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Perfect score:
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1992.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1993.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1994.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1995.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1996.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1996.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2002.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986:DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1990.DAT:*
                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                    number of results predicted by chance to have a n or equal to the score of the result being printed, analysis of the total score distribution.
                                                                                                                                                                                                                                                                      DB
       AAY14154
AAY14156
AAY14153
AAY14155
AAB41444
AAB85665
AAB85665
ABB63760
ABB63760
ABB64401
                                                                                                                                                                                                                                                                      IJ
                                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           908470
                   Human ORFX ORF1208
Human Bcl-2-like p
Breast and ovarian
Drosophila melanog
Drosophila melanog
                                                                                                                                                                                                                                                              Description
                                                                                                                                           Rat Bok protein se
Human Bok protein
                                                                                                                                                                                           Human
                                                                                                                                                                                                               Rat Bok protein se
                                                                                                                                                                                           Bok protein
  Homo
RESULT 1
AAAY14154
AAY14154
AC AAY1
XX AAY1
AC AAY1
XX BAK
KW PIO
KW POO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hsu SY,
                                                                                                                                                                                        07-NOV-1997;
                                                                                                                                                                                                                                        04-NOV-1998;
                                                                                                                                                                                                                                                                                          20-MAY-1999.
                                                                                                                                                                                                                                                                                                                                       W09924453-A1
                                                                                                                                                                                                                                                                                                                                                                                    Rattus rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAY14154;
                                                                                                                                      (STRD )
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n anti-a	152	18	205	•	N
n bcl-2		16	205	•	Ν
n thymu:	888	16	205		N
N	033	16	205	•	N
n Bcl-	434	20	232	•	٠
Apoptosis-blocking	5	17	232	•	25.
Human oncogene bcl		15	239	14.5	127
Bc1-2 pc	AAU76554	23	236	•	Ν
e Bcl-2.	51	22	236	•	N
e bcl-2. Mu	AAB74128	22	236	•	N
ine Bcl	781	20	236	٠	2
n Bc1-2	AAW94348	20	229	٠	N
tosis-	AAW0102	17	229		127
Human Bcl-2 protei	03	22	239	٠	N
_	AAY21120	19	272	٠	ω
Ā	522	23	239		ω
2 poly	55	23	239	•	ω
quence.	ABB75986	23	239	14.8	130
1-2 pr	53	22	239		ω
Bcl-2. Hom	7	22	239		ω
L-2 բ	8	22	239		ω
bcl-2alp	2	22	239		ω
bcl-2. Hom		22	239		ω
l-2 prote	64	22	239	•	ω
Bcl-2 prote		22	239	•	ω
cl-2 pr		22	239	•	ω
Bcl-2-alp		20	239		ω
man Bcl-2	AAW87810	20	239		ω
bc1-2.	AAW40217	19	239	٠	ω
bcl-2 alpha	14	16	239	14.8	130
n bcl-2 prote	$\omega$	16	239	٠	130
oncoge	423	14	239	14.8	ω
ce of bcl-2-	860	ဖ	239	14.8	
Bc1-2	64	22	239	14.9	131
1-2 prote		22	239	14.9	

## ALIGNMENTS

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 169
               Hsu SY,
                                                                                   07-NOV-1997;
                                                                                                                    04-NOV-1998;
                                                                                                                                                                                                                                                                     reproductive tissue; uterine carcinoma; ovarian carcinoma; glandular epithelial
                                                                                                                                                                                                                                                                                                                          Bok protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY14156 standard; Protein; 170 AA
                                               (STRD )
                                                                                                                                                      20-MAY-1999
                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                         proliferative
                                                                                                                                                                                                                                                                                                         pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                        Human Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    al Similarity
169; Conser
                                               UNIV LELAND STANFORD JUNIOR.
                 Hsueh AJW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    170 AA;
                                                                                                                                                                                                                                                                     c protein; apoptosis inducer; BH3i variant; endometriosis; c protein; apoptosis inducer; hyperproliferation disease; tissue; uterine carcinoma; testicular carcinoma; cervix; inoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                         disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           is a mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54-55; 62pp; English.
                                                                                   97US-0064943
                                                                                                                    98WO-US23523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99.2%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 871; DE Pred. No. 7.3e 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bok (Bcl-2-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 20;
.3e-93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
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and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive another tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
Sequence
                                                                                                                                                                                                                                                                                                                                       to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where ther is hyperproliferation of reproductive tissue, e.g. uterine, testicular
                                                                                                                                                                                                                                                                                                                                                                                                               This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH3i variants of pro-apoptotic Bok-related protein can be introduced into cell populations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1999-327356/27.
N-PSDB; AAX61106.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalian Bok (Bcl-2-related ovarian killer), a pro-apoptotic
                                            facilitates elucidation of apoptosis mechanisms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Page
170 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57-58; 62pp; English.
                                                                                             protein
                                                                                                                                                                                                                                                                                                                                                                   there
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and

QΥ В QΥ В 밁 80 Query Match Matches 121 121 61 61 Local ب MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60 GGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEEVRKTLA 120 cal Similarity 167; Conserv TWLRRRGGWTDVLKCVVSTDPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170 GGRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLA 120 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP Conservative 97.9**%**; 98.2**%**; 0; Score 860; DB 20; Pred. No. 1.4e-91; 0; Mismatches 3; Length 170, Indels Gaps 60

. 0

AAY14153 AAY14153; AAY14153 standard; Protein; 27-JUL-1999 (first entry) 213 A

Rattus rattus Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosi pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy; proliferative disorder; rat. 07-NOV-1997; 04-NOV-1998; 20-MAY-1999 97US-0064943 98WO-US23523

(STRD ) UNIV

LELAND STANFORD JUNIOR

Rat Bok

protein sequence

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RESULT 4
AAY14154
ID AAYY
XX
AC AAY1
XX
DT 27-C
DT 27-C
XX
BOK
KW BOK
KW Pro-
KW repp
KW repp
KW repp
KW Oval
KW Oval
KW Oval
KW Oval
KW OSS Home
OS Home
OS PN WO99
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CC This sequence is a mammalian Bok (BCl-2-related ovarian killer)
CC protein, of the invention. Coding sequences for Bok or BH3i variants of protein can be introduced into cell populations to upregulate expression of the protein can be introduced into cell populations CC to upregulate expression of the proteins in order to induce apoptosis in CC the cell population. This is useful for treatment of diseases where there CC is hyperproliferation of reproductive tissue, e.g. uterine, testicular can dovarian carcinomas, endometriosis, squamous and glandular epithelial CC carcinomas of the cervix. Cell killing induced by Bok can be suppressed CC by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok CC protein can be used to elucidate apoptosis mechanisms in reproductive and CC other tissues, and provide a means for manipulating apoptosis. The Bok CC protein and transgenic animal are also useful for identifying ligands or CC substrates Modulation of the gene activity in vivo is useful for CC prophylaxis and therapy of, e.g. cancer and other proliferative CC disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein con with wide tissue distribution and heterodimerisation properties con call titates elucidation of apoptosis mechanisms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
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Best Local
                                                                                                  reproductive tissue; uterine carcinoma; ovarian carcinoma; glandular epithelial
                                                                                                                                      pro-apoptotic
                                                                                                                                                    Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosis;
                                                                                                                                                                                      Human Bok protein sequence
                                                                                                                                                                                                                          27-JUL-1999
                                                                                                                                                                                                                                                          AAY14155
                                                                                                                                                                                                                                                                                          AAY14155 standard;
                   WO9924453-A1
                                                  Homo sapiens
                                                                                    proliferative
                                                                                                                                                                                                                                                                                                                                                                                  181
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                                                                                                                                                                                                                                                                                                                                                                             WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGRLAEVCTVLLRL------
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             170;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bok (Bcl-2-related ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 213 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                      (first entry)
                                                                                    disorder; human
                                                                                                                                      protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            related
                                                                                                                                                                                                                                                                                            Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96.4%;
79.8%;
                                                                                                                                    apoptosis inducer; hyperproliferation disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                            213
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Pred. No. 6.9e-90;
0; Mismatches C
                                                                                                    testicular carcinoma; carcinoma; carcinoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 20;
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RESULT 5
AAB41444
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CC protein, of the invention. Coding sequences for Bok or BH3i variants of
CC protein, of the invention. Coding sequences for Bok or BH3i variants of
CC pro-apoptotic Bok-related protein can be introduced into cell populations
CC to upregulate expression of the proteins in order to induce apoptosis in
CC the cell population. This is useful for treatment of diseases where there
CC is hyperproliferation of reproductive tissue, e.g. uterine, testicular
CC arcinomas of the cervix. Cell killing induced by Bok can be suppressed
CC orexpression with selective anti-apoptotic Bcl-2 proteins: The Bok
CC protein can be used to elucidate apoptosis mechanisms in reproductive and
CC other tissues, and provide a means for manipulating apoptosis. The Bok
CC protein and transgenic animal are also useful for identifying ligands or
CC substrates. Modulation of the gene activity in vivo is useful for
CC prophylaxis and therapy of, e.g. cancer and other proliferative
CC disorders. Bok genes are also useful for identification of cell type
CC based on expression. Identification of Bok as a new pro-apoptotic protein
CC substrates distribution and heterodimerisation properties
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Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalian Bok (Bcl-2-related ovarian killer), a protein and its related gene
                                                       Human ORFX ORF1208 polypeptide sequence SEQ ID NO:2416.
                                                                                         08-FEB-2001
                                                                                                                                                      AAB41444 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 facilitates elucidation of apoptosis mechanisms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (STRD ) UNIV LELAND STANFORD
                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                138
                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                              78
                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                          61 GGRLAEVCTVLLRL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                               WGKVVSLY SAAAGLAVDCVRQAQPAMVHALVDCLGEEVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                           GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                         WGKYVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       al Similarity
167; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2; Page 55-56; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     213 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                         (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94.48;
78.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                      213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 828.5; DB 20
Pred. No. 8.5e-88;
0; Mismatches 3;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
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                                                                                                                                                                                                                                                                                                                                                                                          ----GIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
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Human; open reading frame; ORFX; detection; vulnerary; antipsoriatic; antiparkinsonian; anticonvulsant; osteopathic; antiarthritic;

cytostatic; hepatotropic; immunosuppressant; cardiant;

nootropic;

neuroprotective;

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                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; osteopathic; anticonvulsant; antiarthritic; immunosuppressant; immunostimulant; cardiant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antidiabetic; hypotensive; dermatological; immunosuppressive; antithropid; antibacterial; antiviral; antifungal; antirheumatic; antithropid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating pathological conditions associated with an ORFX-associated disorder. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31-MAR-1999;
02-APR-1999;
05-APR-1999;
                                                                                                                                                                                                                                                                                                     nucleic acids can be used to express ORFX proteins in gene therapy vectors. The proteins and nucleic acids may be used to treat cancers, proliferative disorders, neurodegenerative disorders, osteoarthritis, graft vs host disease, cardiovascular disease, diabetes mellitus, hypertension, hypothyroidism, cholesterol ester storage, systemic lupus erythematosus, severe combined immunodeficiency (SCID), AIDS, viral, bacterial or fungal infection, malaria, autoimmune disorders, asthma, allergies, aplastic anaemia, burns, wounds, bone and cartilage damage, nocturnal haemoglobinuria, antiinflammatory disease; to enhance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antiviral; antibacterial; antiproduce; antiinflammatory; antiviral; antithyroid; antianaemic; gene therapy; cancer; proliferative disorder; hypertension neurodegenerative disorder; osteoarthritis; graft vs host disease; cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS; cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthma; allergy; aplastic anaemia; nocturnal haemoglobinurla; burn; wound; bone damage; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Novel nucleic acids and peptides derived from open reading useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -
                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 11; Page 1750–1751; 5507pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Shimkets RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31-MAR-2000; 2000WO-US08621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-OCT-2000
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                                                                                                                                                                                                                                                                                      coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (CURA-) CURAGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
    61
                                       61
                                                                                                                                                                                 Local Similarity
                                                                                                    MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000-602362/57.
GGRLAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT 120
                                           GGRLAEVCTVLLRL---
                                                                               MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
                                                                                                                                                                                                                                              213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          contraceptive.
                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0540763
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99US-0127728.
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                                                                                                                                                                                                                                                                                      inhibit thrombosis; and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X
                                                                                                                                                                               93.1%;
77.0%;
                                                                                                                                                               2
                                                                                                                                                                                 Score 817.5; DB 2
Pred. No. 1.6e-86;
                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                      as
                                                                                                                                                                                                                                                                                      a contraceptive.
                                                                                                                                                                                                    21;
                                                                                                                                                               4.
                                                                                                                                                               Indels
                                                                                                                                                                                                  Length
                                                                                                                                                                                                      213;
                                                                                                                                                               43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hypertension;
                                         GIT 77
                                                                                                                                                             Gaps
                                                                                                                                                               1;
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8

41 ARLLRAGLSWSAPERASPAPGGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQ 100

Matches

Local

Similarity

56.4%; 75.4%;

Score 495; DB 22; Pred. No. 2.4e-49; 5; Mismatches 21;

Indels

6

Gaps

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Conservative

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RESULT 6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                          The invention provides nucleic acid molecules (NAM1) encoding 4 human CC BC1-2-like polypeptides (PEP1). The NAM1 and PEP1 may be used in the CC prevention, diagnosis and treatment of diseases associated with CC inappropriate BC1-2-like polypeptides' expression. The NAM1 may be used CC to produce the soluble BC1-2-like polypeptides by standard recombinant CC methodolgy. The polypeptides may also be used as antigens in the CC modulators of BC1-2 expression and activity. The anti-BC1-2 antibodies against BC1-2 and in assays to identify CC modulators of BC1-2 expression and activity. The anti-BC1-2 antibodies CC and antagonists may be used to down regulate expression and activity. CC The anti-PEP1 antibodies may also be used as diagnostic agents for CC immunosorbant assay (ELISA). Disorders that may be prevented, diagnosed CC and/or treated by the above methods include, immunodeficiencies (e.g. captions, inflammations, resolvators and Grave's disease), altergic CC reactions, inflammations, resolvators and Grave's disease), altergic CC creactions, inflammations.
                                                                                                                                                                                                                                                                                                                                                                      Claim 12;
                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acids encoding human \mbox{Bcl-2-like} polypeptides, useful for preventing, diagnosing and/or treating -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-2000;
07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31-JAN-2001; 2001WO-US03080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bc1-2-like polypeptide; autoimmune disorder; allergy; immunomodulatory;
respiratory; cardiovascular; antiarthritic; immunostimulant; vaccine;
Sequence
                                                  reactions, inflammations, respiratory diseases and cardiovascular disorders (a full list of disorders is given in the specification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ruben SM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200157060-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     respiratory; cardiovascular; antiarthritic; immuno immunosuppressive; antiinflammatory; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human Bcl-2-like polypeptide (clone HHFHE17).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAB85665 standard; Protein; 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
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DB; AAH47021.
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                                  sequence represents
                                                                                                                                                                                                                                                                                                                                                                    Page 277-278; 285pp; English.
134
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-0179487.
2000US-0180697.
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AA;
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                                  a
                                orders is given in the specification). human Bcl-2-like polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                     antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antifungal; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, particularly breast and ovarian cancer. The nucleic acid sequences, proteins, agonists and agonists may also be used in the diagnosis, prevention and treatment of immune disorders e.g. Addison's disease, allergies, autoimmune haemolytic anaemia, autoimmune thyroiditis, diabetes mellitus, Crohn's disease, multiple sclerosis, rheumatoid arthitis and ulcerative colitis, cardiovascular disorders such as
                                                                                                                                                                                                                                                                                                                                  invention. The breast and ovarian cancer associated DNA, protein, agonist or antagonist sequences exhibit cytostatic; immunosuppressive; nootropic; neuroprotective; antiviral; antiallergic; hepatotropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAB58711 - AAB59128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention are sequences AAF22032 - AAF22040 and AAB59129 which are used in the isolation and characterisation of the DNA and protein sequences of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human; breast cancer; ovarian cancer; cytostatic; immunosuppressive; nootropic; neurpprotective; antiviral; antiallergic; hepatotropic; antidiabetic; antinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antifungal; antiparasitic; cardiant; immune disorder; antibacterial; antifungal; antiparasitic; cardiant; immune disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New human breast and ovarian cancer associated gene sequences and the polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascular disorders and neurological diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequences AAF21614 - AAF22031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB; AAF21852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rosen
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Addison's disease; allergy; autoimmune haemolytic anaemia; autoimmune thyroiditis; diabetes mellitus; Crohn's disease multiple sclerosis; rheumatoid arthritis; ulcerative colit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HUMA-) HUMAN, GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Breast and ovarian cancer associated antigen protein sequence SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB58949 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              125
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ||||:|||||
|AAFFVLLPER 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000-611515/58.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page 1103; 1299pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ruben
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           disorder; wound healing; neurological disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0124270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
neurological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        disease;
ve colitis;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                               capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL101840-ABL16175) and the encoded proteins
                                                                                                                                                                                                                                                                                              23-MAR-2000;
11-JUL-2000;
  Sequence
                      at ftp.wipo.int/pub/published_pct_sequences.
                                 specification,
                                                                                                                     The invention relates to an capable of detecting 1000 or
                                                                                                                                                    Disclosure; SEQ ID NO 18072;
                                                                                                                                                                                     genes
                                                                                                                                                                                                                                                   Venter JC,
                                                                                                                                                                                                                                                                                                                                                 27-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                       WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                           Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                  pharmaceutical
                                                                                                                                                                                                                                                                                                                                                                                                                            Drosophila;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABB63760;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABB63760 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cerebral anoxia and
                                                                                                                                                                                                                                                                      (PEKE )
                                                                                                                                                                                                                                                                                                                             23-MAR-2001; 2001WO-US09231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-MAR-2002
                                                      (ABB57737-ABB72072)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        161
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41 ARLLRAGLSWSAPERASPAPGGRLAEVCTVLLRLGITWGKVVSLYSVAAGLAVDCVRQAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                           sequence data
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AAFFVLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVVSTDPGFRSHWLVATLCSFGRFLK 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVVSTDPGLRSHWLVAALCSFGRFLK
                                                                                                                                                                                   from Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98;
                                                                                                                                                                                                                                                                        PE
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                                                                                                                                                                                                                                                                        CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                               melanogaster polypeptide
  247
                                                                                                                                                                                                                                                  Adams M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                            developmental biology;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                               nucleic
                                                                                                                                                                                                                                                                                             2000US-191637P
2000US-0614150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
  ΑA;
                                  but was
                                                                                                                                                                                                                                                                         NY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       170
                                           for this patent did not form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               epilepsy; and infectious
                                                                                                                                                                                   acid
a and
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75.4%;
                                                                                                                                                                                                                                                   F
                                  obtained
                                                                                                                                                                                                                                                    , dwd
                                                                                                                                                                                   detection reagent for for elucidating cell s
                                                                                                                               isolated nucleic acid detection reagent
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د
                                                                                                                                                  21pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 495; DB 21;
Pred. No. 3.4e-49;
5; Mismatches 21;
                                                                                                                                                                                                                                                   Myers
                                in electronic
                                                                                                                                                                                                                                                                                                                                                                                                                            cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                   Sequence Listing;
                                                                                                                                                                                                                                                   EW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                ID NO 18072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                diseases
                                 n part c
                                                                                                                                                                                 r detecting signalling
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                               of the printed t directly from
                                                                                                                                                 English.
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and c
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     106
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                                 WIPO
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19

.88;

Score 173.5;

DB

22;

Length

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ABB64401
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                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 44; Conserv
                                    Matches
                                                                                                                                              sequences (ABL0184(
(ABB57737-ABB72072)
                                                                                                                                                       insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins
                                                                                                                                                                                            The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of
                                                                                   Sequence
                                                                                                        specification, but was obtained in electronic
at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                          Disclosure; SEQ ID NO 19995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pharmaceutical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila; developmental biology; cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila melanogaster polypeptide SEQ ID NO 19995
                                                                                                                                                                                                                                                                                  interactions
                                                                                                                                                                                                                                                                                           New isolated nucleic acid
genes from Drosophila and
                                                                                                                                                                                                                                                                                                                                                                    Venter JC,
                                                                                                                                                                                                                                                                                                                                                                                           (PEKE ) PE
                                                                                                                                                                                                                                                                                                                                                                                                                  23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-MAR-2001;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABB64401 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        207
           26
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25
                                                Local Similarity
                                                                                                                                  sequence data for this patent did not form
ELVAQAKALGREYVHARLLRAG-LSWSAPER---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QDIISQGRCLCGHYIKRRLRRSGLFNKKLGLQRIRSILGSTSMGIVRDVFPAVQVLGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KELVAQAKALGREYVHARLLRAGL-----
                                                                                                                                                                                                                                                                                                                                 2001-656860/75
DB; ABL08504.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SVDCVRQGHPEYLPKLMESVSEVIEDELVPWINENGGW 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ERMHPRIYNGVARQICRNPGGEFHTPDAVSLLLGAVGRELFRVEITWSKVISLFAIAGGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ERASPA------PGGR-----LAEVCTVLLRLGITWGKVVSLYSVAAGL 91
                                                                                                                                                                                                                                                                                                                                                                                           CORP NY.
                                                                                   846 AA;
                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                   Adams M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-191637P.
2000US-0614150.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein;
                                             19.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27.8%;
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                                                                                                                                                                                                                                                                                                                                                                    PWD,
                                                                                                                                                                                                                                                                                         detection reagent for detecting for elucidating cell signalling
                                   17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             846
                                              Score 173;
Pred. No. 6.
                                                                                                                                                                                                                                                       21pp + Sequence Listing; English
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                                                                                                                                                                                                                                                                                                                                                                   Myers
                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
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                                                                                                                                                                                                                                                                                                                                                                    EW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.1e-11;
                                              DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41;
                                                                                                                    part of the printed format directly from WIPO
                                                       Length
                                   Indels
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                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                       1000
                                  52;
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                                                                                                                                                                                                                                                                                             cell-cell
                                                                                                                                                                                                                                                                                                       or more
                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
           55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    206
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Qy

37 EYVHARLLRAGLSW---

--SAPERASPAPG-

Query Match Best Local Matches 4

Similarity

14.9%; 19.4%;

Score 131; Pred. No.

9e-07;

DB 17;

Indels 8

Mismatches

52;

88;

Gaps -- 61

Conservative

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RESULT 10
AAW02383
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ij
                                                                                                                                                  The present sequence is human BCL2 from which a peptide capable of inhibiting BCL2 gene, or gene product, function in a cell can be derived. The cDNA sequence encoding the peptide is a sense oriented genetic suppressor element (GSE) for reversing BCL2 mediated suppression of apoptosis in a mammalian cell. The
                                                                      for the treatment of cancer, but more generally to induce virus infected cell death, or to treat apoptosis related diseases of haematopoietic or neurological cells. The GSE peptide product or
                                                                                                                                                                                                                                                Claim 20; Pages 37-38; 66pp; English.
                                                                                                                                                                                                                                                                            Sense oriented genetic suppressor elemediated inhibition of apoptosis, and against chemotherapeutic agents
                                                                                                                                                                                                                                                                                                                                                         WPI; 1996-443179/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B cell malignancy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   decrease; expression; anticancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              increase; treatment; induction; virus; infection; d disease; haematopoietic; neurological; recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sense oriented; genetic suppressor element; GSE; reverse; BCL2; gene; mediated; suppression; apoptosis; mammalian; cinhibition; sensitisation; cancer; chemotherapeutic agent;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW02383 standard;
Sequence
                                                                                                                      GSE and its peptide product can be used to sensitise cancer cells to chemotherapeutic agents, and to increase apoptosis, especially
                                                                                                                                                                                                                                                                                                                                          N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                      (UNII ) UNIV ILLINOIS FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-MAR-1996;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW02383;
                                                           recombinant construct encoding the GSE can be used to decrease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                           gene expression by exerting an anticancer effect, e.g. of non-Hodgkin's lymphoma and B cell malignancy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DCVRQGHFDYLQCLIDGLAEIIEDDLVYWLIDNGGW 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER 155
                                                                                                                                                                                                                                                                                                                                          AAT33694.
239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein;
                                                                                                                                                                                                                                                                                                                                                                                       IB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         239
                                                                                                                                                                                                                                                                                                                                                                                       Schott B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          À
                                                                                                                                                                                                                                                                                             element -
and for se
                                                                                                                                                                                                                                                                                                                                                                                       Tarasewicz DG;

    for reversing
sensitising canc

                                                                                                                                                                                                                                                                                             cancer cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cell;
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RESULT 11
AAG64036
ID AAG644036
AC AAG64
AC AAG6
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                            increased apoptosis inhibitory activity compared with the wild type BC1-2 protein. The mutated BC1-2 protein is useful in the treatment of disorders caused by apoptosis. The present sequence is a mutant BC1-2 protein of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to an apoptosis inhibitor comprising the amino acid sequence of Bcl-2 protein in which at least one serine residue is substituted by alanine or aspartic acid. The protein has
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 5; Page 30-31; 43pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Shibazaki F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-DEC-1999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human Bcl-2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAG64036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAG64036 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New apoptosis inhibitors, useful for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (HISM ) HISAMITSU PHARM CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       197
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                                                                                                                                                       KYIHYKLAQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
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                                                                                                                                                                                                       EYVHARLLRAGLSW-----SAPERASPAPG---
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  LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
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                                                                                                                                                                                                                                                                                                                                                               239
                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kuma H;
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                                                                                                                                                                                                                                                                                                                                                               A,
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19.4%;
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                                                                                                                                                                                                                                                                                  Score 131; DB 2
Pred. No. 9e-07;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              apoptosis related
                                                                                                                                                                                                                                                                                                         Length 239;
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                                                                                                       GRLAEVCTV
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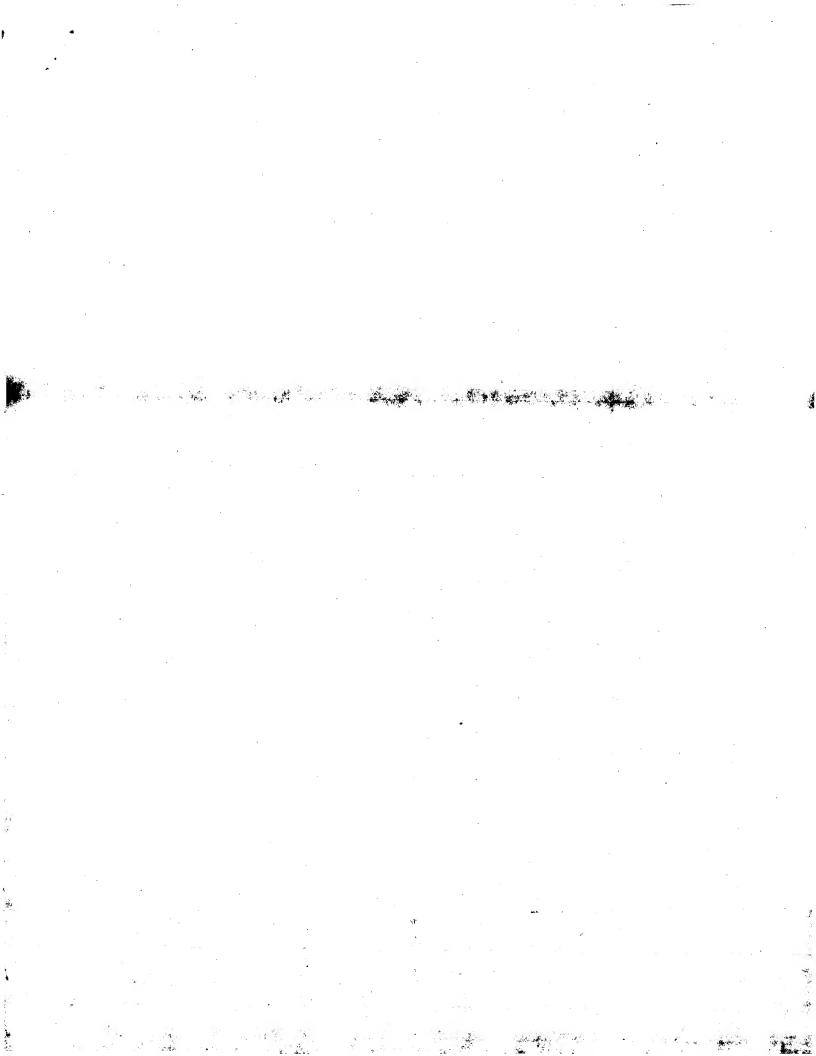
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RESULT 12
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                                                                                                                                                                                                                                       Bcl-2 protein. The mu of disorders caused 1 Bcl-2 protein of the
                                                                                                                                                                                                                                                                                                                                                     New apoptosis inhibitors, disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAG64038 standard; protein;
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                                                                                                                                                                                                                                                                                                                                                                                   WPI;
                                                                                                                                                                                                                                                                                                                                                                                                        Shibazaki F,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; Bcl-2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-SEP-2001
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 197
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                                                                                                                                                                                   Local
                                                                                    APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AFVELYGPSMRPLFDFSWLSLKTLLS 222
 AFVELYGPSMRPLFDFSWLSLKTLLS
                    DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                              KYTHYKLSQRGYEWDAGDVGAAPPGAAPAPGTFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                          LFRDGVNWGRIVAFFEFGGVMCVEAVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                                             LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
                                                                                                                                                                                                                                                                                                                            7; Page 33-34; 43pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bcl-2 protein
                                                                                                                                                                       l Similarity
40; Conserv
                                                                                                                                                                                                                 239 AA;
                                                                                                                                                                       Conservative
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                                                                                                                                                                                                                                                 by apoptosis.
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                                                                                                                                                                     Pred. No. 9e-(
5; Mismatches
                                                                                                                                                                              Score 131; Db 2
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                                                                                                                                                                                                                                                   The present sequence is a mutant
                                                                                                                                                                                                                                                                                                                                                           treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       inhibitor;
                                                                                                                                                                                            DB 22;
                                                                                                                                                                                                                                                                                                                                                           apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mutant
                                                                                                                                                                                             Length
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                                                                                                          GRLAEVCTV
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RESULT 14
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AAP80987
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Best Local :
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                                                                                                                                                                                                                                                                                                                 A human bc1-2 gene substantially free of introns is claimed. Also claimed is a substantially pure preparation of a protein having an N-terminal end encoded by the first exon of the human bc1-2 gene wherein said protein is bc1-2-alpha having about 239 (AAP80987) or 205 (AAP80988 AA residues. B-cell neoplasms which are associated with t(14:18)
                                                                                                                                                                                                                                                                              chromosome translocations cause an increase in expression of both the mRNA and the protein prods. of the bcl-2 gene. This is used to detect B-cell neoplasms including follicular lymphomas as well as other lymphomas. Bacterial isolates available as ATCC 67147 and 67148 can be
                                                                                                                                                                                                                                                                                                                                                                                               Detection of B-cell neoplasms -
by extn. of proteins or RNA from B-cells and quantitation using
specific antibody or DNA probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1988-008633/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B-cell neoplasm; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence of bcl-2-alpha the 5.5 kb transcript.
                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                             Claim 12; Fig 2A-2D; 23pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tsujimoto Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-JUL-1986;
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                                                                                                                                                                                                   Local Similarity es 40; Conserv
                                                                             LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALMMTEYLNRHLHTWIQDNGGWD 196
                                        AFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                               LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT 130
                                                                                                                                                          KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                               EYVHARLLRAGLSW-----SAPERASPAPG-----
                                                                                                                                                                                                                                                           to express bcl-2 gene products alpha (AAN81292) and beta (AAN91293). in bacteria.
                                                          DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                   APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                        AAN81292.
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                                                                                                                                                                                                                                         239 AA;
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                                                                                                                                                                                                            14.8%;
19.4%;
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                                                                                                                                                                                                Score 130; DB 9; 1
Pred. No. 1.2e-06;
5; Mismatches 53;
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                                                                                                                                                                                                                   Length 239;
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                                                                                                                                       -GRLAEVCTV 70
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RESULT 15
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AC AAR70
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of elements allowing its expression is claimed. Myc-induced cell death can be inhibited in cultured cells by expressing bcl-2. Myc-induced cell death can be de-inhibited in tumour cells by admin of bcl-2 antisense oligonucleotides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Page 76-77; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Treating tumour cells by de-inhibiting Myc-induced apoptosis esp. by inhibiting expression of the BCL-2 oncogene e.g. with antisense oligo:nucleotide(s), also increasing survival of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1993-336908/42.
N-PSDB; AAQ49815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bcl-2 oncogene product
               27-SEP-1995
                                                AAR70331;
                                                                                AAR70331 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cultured cells by expressing BCL-2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (IMCR ) IMPERIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-APR-1992;
02-APR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9320200-A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-MAY-1994
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-OCT-1993
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                                                                                                                                                                                                                                                                                                                                                                                                       37 EYVHARLLRAGLSW-----SAPERASPAPG-----
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                                                                                                                                                                                                                                                                                                     APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
                                                                                                                                                                    AFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                        KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                                                    LLRLGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT 130
                                                                                                                                                                                                  DVLKCV-VSTDPGFRSHWL-VATLCS 154
                                                                                                                                                                                                                                    LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD
                                                                                                                                                                                                                                                                                                                                                                                                                                          l Similarity
40; Conserv
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               (first entry)
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92GB-0007276.
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                                                                                  Protein;
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Pred. No. 1.
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les 53;
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                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
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Human bcl-2 protein.

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Best Local Similarity
Matches 40; Conserv
                                                                                                                                                                                                                                                                                                                                                                                     The human bcl-2 gene encodes a 25 kDa protein (AAR70331). Antisense oligonucleotides have been designed to bind sites in mRNA transcribed from the bcl-2 gene, thereby reducing expression of the bcl-2 protein and inducing cell death in certain cancer cells.
                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 71-72; 108pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Anti-code oligomers which bind to bcl-2 mRNA - for the treatment of human solid tumours, esp. breast cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Reed JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-SEP-1994;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1995-139394/18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (REED/) REED J C.
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                                                         131 DVLKCV-VSTDPGFRSHWL-VATLCS 154
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197 AFVELYGPSMRPLFDFSWLSLKTLLS 222
                                                                                                                  137 LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                                                                                                                                                                                                                                                  37 EYVHARLLRAGLSW-----SAPERASPAPG-----
                                                                                                                                                71 LIRIGITWGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT 130
                                                                                                                                                                                                          62 ------GRLAEVCTV 70
                                                                                                                                                                               77 APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
                                                                                                                                                                                                                                      17 KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                                                                                                                                          239 AA;
                                                                                                                                                                                                                                                                                                 Conservative
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                                                                                                                                                                                                                                                                                                14.8%; Score 130; DB 16;
19.4%; Pred. No. 1.2e-06;
11.4%; Pred. No. 1.2e-05;
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Result
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Maximum Match 10
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O9i8i2 gallus gall
O9dg15 gallus gall
O8dg5 rattus norv
O9v9c8 drosophila
O8t8y5 drosophila
O9ngx3 drosophila
O9v612 drosophila
                        Q95u83 drosophila
Q923r6 cricetulus
Q35843 mus musculu
Q35844 mus musculu
                                                                                                                                                            Q9ul32 homo sapien
                                                                                                                                                                                Description
                                                                                                                                                   035425 rattus norv
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8.9 89 13 Q8UWJ1	101 9 2 172 11 055179	104 5 9 5 172 11 055177	110.5 10.0 114 4 09NR76	116 10.5 350 4 Q9UNJ1 Q	116 10.5 211 13 Q9W6F1	124 11.3 173 11 Q9JKL3	126 11.5 331 11 P97287	126.5 11.5 330 11 Q9Z1P3	126.5 11.5 209 11 Q9JK59	131.5 12.0 192 6 Q8SQ43	131.5 12.0 149 6 Q9GMG7 . Q	132.5 12.0 178 11 Q9CYW5	134.5 12.2 193 11 088996	135.5 12.3 180 6 Q9BDX7 Q	136 12.4 221 13 Q98U13	136 12.4 163 6 Q9MZS6	137.5 12.5 180 6 Q9BDD5	137.5 12.5 173 4 Q8WZ49 (	138.5 12.6 204 13 Q90ZH2	142 12.9 217 11 Q99N35	142.5 13.0 233 6 Q9MYW4 Q	145 13.2 238 13 Q90Z98	145.5 13.2 192 13 Q9I9N4 .	145.5 13.2 179 4 Q9NYG7 Q	146.5 13.3 219 11 Q99N36	146.5 13.3 188 4 Q9H1R6	147.5 13.4 233 6	147.5 13.4
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "CDNA cloning of the human Bok gene.";

Submitted (SEP-1998) to the EMBL/GenBank/DDBJ databases.

EMBL; AF089746; AAF09129.1;

InterPro; IPR000712; Bcl2_BH.

InterPro; IPR002475; BcL2_family.

Pfam; PF00452; Bcl-2; 1.

SMART; SM00337; BcL; 1.

PROSITE; PS50062; BCL2_FAMILY; 1.

SEQUENCE 213 AA; 23540 MW; 59509F8C7330517F CRC64;
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O9UL32;
01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
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Hsu S.Y., Hsueh A.J.W.;
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Homo sapiens (Human).
Metazoa; Chordata;
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121 WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180
                                                                   1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                   213;
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Pred. No. 7.1e-89;
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Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chen S., Nunez G.;
Submitted (DEC-197) to the EMBL/Ge
EMBL; AF027954, AAB87418.1;
EMBL; AF027707; AAC53582.1;
MGD; MGI:1858494; Bok.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BcL2_family.
Pfam; PF00452; Bc1-2; 1.
SMART. SMO0337. BCF: 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 reproductive tissues and heterodimerizes wi Bcl-2 family members.";

proc. Natl. Acad. ~-'
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PROSITE; PS50062; BCL2_FAMILY;
SEQUENCE 213 AA; 23456 MW;
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01-JAN-1998 (TrEMBLrel. 05, I
01-JUN-2002 (TrEMBLrel. 21, I
BCL-2-related ovarian Killer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPECIES=Rat; STRAIN=SPRAGUE-DAWLEY; Hsu S.Y., Hsueh A.J.W.; Submitted (OCT-1997) to the EMBL/Ger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPECIES-RAT; STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY, MEDLINE-98024143; Pubmed-9356461; Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A. "Bok is a pro-apoptotic Bcl-2 protein with restric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPECIES=Mouse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus (Mouse).
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STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
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98.6%;
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Pred. No. 9.1e
0; Mismatches
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F8755C45CB05D626
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Best Local S
Matches 200
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Submitted (NOV 2001) to the EMBL/G
EMBL; AF174487; AAD51719.1; -
EMBL; BC006203; AAH66203.1; -
EMBL; BC017214; AAH17214.1; -
Interpro; IPR000712; BC12_BH.
Interpro; IPR002475; BC12_family.
Pfam; PF00452; BC1-2; 1.
SMART; SM0337; BCL; 1.
                                                                                                                                Q91812;
Q91812;
Q1-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9UMX3;
Q9UMX3;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE;
SEQUENCE
                                                              01-0CT-2000 (TrEMBLrel. 15, 01-0CT-2000 (TrEMBLrel. 15, 101-JUN-2002 (TrEMBLrel. 21, 18cl-2-related ovarian killer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein (Similar to BCL-2-related ovarian killer protein-like-PENDING) (BCL-2-related ovarian killer protein-like-PENDING) (BCL-2-related ovarian killer
                    Eukaryota;
                                            Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM
TISSUE=MUSCLE;
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                                                                                                                                                                                                                                                                                                                                                                       GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
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                    Metazoa;
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                                                                                                                                                                          PRELIMINARY;
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; 23280 MW;
Neognathae;
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                      Chordata;
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                                                                                     Last sequence up
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                                                                                                                                Created)
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                                                                 protein.
  Craniata; Ver ; Galliformes;
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Vertebrata; Eute
nes; Phasianidae;
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                    Euteleostomi;
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01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
Bcl-2-related ovarian killer protein.
Gallus gallus (Chicken).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE;
SEQUENCE
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MEDLINE=20487164; PubMed=11034351;
MEDLINE=20487164; PubMed=11034351;
                                                                                                                                                                                                                                                  PROSITE; PS50062; SEQUENCE 213 AA
                                                                                                                                                                                                                                                                                                  Pfam; PF00452; Bcl-2; SMART; SM00337; BCL;
                                                                                                                                                                                                                                                                                                                                          InterPro; IPR000712; BC12_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                    Submitted (JUL-2000) to the EMBL/GenBank/DDBJ databases EMBL; AF290888; AAG01182.1; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mills E.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00452; Bc1-2; 1
SMART; SM00337; BCL; 1.
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InterPro; IPR002475; BCL2_family.
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                                                                                                                                                                                                                                                                                                                                                                                                                                  *Characterization and
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                                                                     STDPSLRSHWLVAAVCSFGHFLKAIFFVLLPER
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213 AA; 23619 MW;
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                                                                                                                                                                                                                                                      23658 MW;
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Pred. No. 4.9e-69;
2; Mismatches 27;
                                                                                                                                                           Score 868; DB 13;
Pred. No. 1.7e-68;
3; Mismatches 28;
                                                                                                                                                                                                                                                    1.
07CC06BEBD7311EC CRC64;
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B3AF7049F25442E3 CRC64;
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Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok is a protein bcl-2 protein with restricted ex
reproductive tissues and heterodimerizes with selective
bcl-2 family members.";
Proc. Natl. Acad. Sci. U.S.A. 94:12401-12406(1997).
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HSU S.Y., Hsueh A.J.W.;
HSU S.Y., Hsueh A.J.W.;
The Bcl-2 member Bok with a truncated BH3
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Mammalia; Eutheria;
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E; PS50062; BC
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(TrembLrel. 08, Last sequence update)
(TrembLrel. 21, Last annotation update)
ed ovarian killer protein.
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RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Denos P.V., Berman B.P., Bhandari D., Boltshakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gelbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gelbart W.M., Glasser K.,
RA Harris N.L., Harvey D., Helman T.J., Hernandez J.R., Houck J.,
RA Jalali M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Melman N.V., Mobarry C., Morris J., Moshrefi A.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Nelson D.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
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01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-OCT-2000 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Death EXECUTIONER BCL-2 homolog protein (PROAPOPTOTIC BCL-2 homolog
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1),
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1),
DEBCL OR DBORG1 OR BOK OR BCL2 OR BG1 OR ROB-1 OR CG12397,
DEBCL OR DBORG1 OR BOK OR BC12 OR BG1 OR ROB-1 OR CG12397,
DESCRIPTION BOK OR BCL2 OR BG1 OR ROB-1 OR CG12397,
Drosophila melanogaster (Fruit fly)
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Plerygota; Metazoa; Endopterygota; Diptera; Brachycera; Muscomorphi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REVISIONS
Igaki T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Drosophila pro-apoptotic Bc1-2/Bax homolog conservation of cell death mechanisms.";
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MEDLINE=20105529; PubMed=2015529;
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01-MAY-2000
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Huang Q.,
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Kanuka H., Inc
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Z,
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machinery.";
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RESULT Q8T8Y5
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Best Local
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CONFLICT 1 86
CONFLICT 215 215
CONFLICT 217 217
CONFLICT 217 217
CFORTENCE 300 AA; 32940 M
  Q8T8Y5;
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InterPro; IPR002475; BCL2_family.
InterPro; IPR000822; Znf_C2H2.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
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Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "dBorg-1, a Drosophila Bcl-2 family member that apoptotic response to UV-irradiation."; Submitted (MAR-2000) to the EMBL/GenBank/non-3-2MRI. ABD3-1470
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Zhou L., Steller H.
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L; AF1178430; AAF26841 1; ALT-
L; AF228044; AAF89165 1; ALT-
L; AE003789; AAF89165 1; ALT-
L; AF216752; AAF25955 1; ALT-
L; AF22004; AAF44324 1; AF243352; AAF44324 1; ALT-
L; AF243352; AAF44714 1; AF244354; AAF444341 1; AAF444354; AAF444314 1; AAF444354; AAF444314 1; AAF444354; AAF444314 1; AAF444354; AAF444354; AAF444354; AAF444354; AAF444354; AAF44354; AAF444744; AAF44744; AAF447
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                                                                                                                                                                                           DCVRQGHFDYLQCLIDGLAEIIEDDLVYWLIDNGGW
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PS50062; BCL2_FAMILY; 1.
PS50157; ZINC_FINGER_C2H2_2;
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  (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                      PRELIMINARY;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21.9%;
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ALT_TERM.
Created)
Last sequence update)
Last annotation updat
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                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 3.1
7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 240.5;
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of mammalian Bcl-2-related
                                                                                      PRT;
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-> R (IN REF. 4)
FF29E0ADCF3D0942
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hat functions
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ن</u>
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID=7227;
                                                                FlyBase; FBgn0040491; Buffy.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR002475; BCL2_family
                                                                                                                                                                                                                                                                                                                                           01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                         Pfam; PF00452; Bcl-2; SMART; SM00337; BCL; 1
                                                                                                                                   "Debcl, a proapoptotic bcl-2 homologue, is a component of the Drosophila melanogaster cell death machinery.";
J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                           Drosophila melanogaster (Fruit fly).
Eukaryota; metazoa; Arthropoda; Tracheata;
Pterygota; Neoptera; Endopterygota; Diptera
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                   Bcl-2-like protein BUFFY BUFFY OR CG8238.
                                                                                                                                                                                                                                                                                                                                                                                      Q9NGX3;
                                                                                                                                                                                                                                                                                                                                                                                                   Q9NGX3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (JAN-2002)
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                                                                                                            HSSP;
                                                                                                                                                                                           Colussi P.A., Quinn L.M., Huang D.C.,
                                                                                                                                                                                                         MEDLINE=20153510; PubMed=10684252;
                                                                                                                                                                                                                     SEQUENCE FROM N.A.
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                            PROSITE;
                                                                                                                                                                              Richardson H., Kumar S.;
                                                                                                                                                                                                                                              NCBI_TaxID=7227;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -LEWITLVIGVVFGLILVFMILRFIFNLIVPK
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RSHWLVATL-CSFG--
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                                                                                                           AF237864; AAF44120.1; Q07817; 1MAZ.
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NCE 299 AA; 33379 MW;
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                         M00337; BCL; 1.
PS50062; BCL2_FAMILY;
  313
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 34909 MW;
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31.1%;
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                                                                                                                                                                                                                                                                                                                                (Fragment).
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Pred. No. 4.
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 775A41FDDD5B678E CRC64;
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                                                                                                                                                                                                                                                                           Diptera;
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                                                                                                                                                                                            Coombe
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                                                                                                                                                                                                                                                                         Brachycera;
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RA Ballew R. M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Beeson K.Y., Benos P.V., Berman B.P., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Burlis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dev II., Dietz S.M.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dev II., Dietz S.M.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Dodson K., Devill J.H., Gu Z., Gulbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gulbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gulbar P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Merkulov G., Milshia N.V., Mobarry C., Morris J., Moshrefi A.,
RA Ment S.M., Welson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA Williams S.M., Woodage T., Weinter E., Wang A.H., Wang X.,
RA Weilson C., Zaveri J.S., Zhan M., Zhang G., Zhao Q.A.,
Zheng L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
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Best Local :
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Q9V612;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D., Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F., George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N., Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X., Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D., Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G., Mabril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D., Palloy, P.A., Physical R., Andrews-Pfannkoch C., Baldwin D., Palloy, P.A., Physical R., Andrews-Pfannkoch C., Baldwin D., Palloy, P.A., Physical R., Andrews-Pfannkoch C., Baldwin D., Palloy, P.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pterygota; Neoptera;
Ephydroidea; Drosophi
NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=BERKELEY; MEDLINE=20196006; PubMed=10731132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CG8238 protein.
BUFFY OR CG8238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25 KELVAQAKALGREYVHARLLRAGL--SWSAPERASPAPG----GRLAEVCTVLLRLGDEL
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                                                                                                                                                         Reese M.G.,
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                                                                                                                                                                                                                                                                   SMART; SM
SEQUENCE
                                                                                                                                                                                                                                                                                 FlyBase; FBgn0029131; debcl.
InterPro; IPR000712; Bcl2_BH.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; He
Pterygota; Neoptera; Endopterygota; Diptera;
Ephydroidea; Drosophilidae; Drosophila.
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SMART; SM00337; BCL; 1.

PROSITE; PS50062; BCL2_FAMILY;

SEQUENCE 247 AA; 27466 MW;
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01-DEC-2001 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
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"The genome sequence of Drosophila miscience 287:2185-2195(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
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DEBCL OR CG12397
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InterPro; IPR002475; BCL2_family.
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156
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                                                                                                          ELVAQAKALGREYVHARLLRAG-LSWSAPER----ASPAPGGRLAEVCTVLLRLGDELEQ ::: | | | :|:||| ; :|:|||:
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MHPRVYTNISRQLSRAPFGELEDSDMAPMLLNLVAKDLFRSSITWGKIISIFAVCGGFAI
                                  IRPSVYRNVARQL-HIP---LQSEPVYTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAV 136
                                                                                   DIINQGKCLCGQYIRARLRRAGVLNRKVTQRLRNILDPGSSHVVYEVFPALNSMGEELER
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                                                                                                                                                                                                                                                                 317 AA;
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                                                                                                                                                                                                                                                                   34649 MW;
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Pred. No. 2e-1
28; Mismatches
                                                                                                                                                                                                                     Score 209.5;
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NO. 2e-12;
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., Venter J.C.;
a melanogaster.";
                                                                                                                                                                                         No.
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Miranda A., Mungall C.J.,
phouanenavong S., Wan K.,
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Pfam; PF02180; BH4; 1.
TIGREAMS; TIGR00865; bc1-2; 1
PROSITE; PS50062; BCL2 FAMILY
PROSITE; PS01080; BH1; UNKNOW
PROSITE; PS01258; BH2; UNKNOW
                                                   01-JAN-1998
01-JAN-1998
01-JUN-2002
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01-DEC-2001
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PROSITE;
PROSITE;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Construction of a robust CH Submitted (JUL-2001) to the EMBL; AF404339; AAK92201.1;
         Eukaryota;
                     Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
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                                BCL2L
                                          Bcl-x-gamma.
                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B-cell Lymphoma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR000712; Bcl2_BH. InterPro; IPR003093; Bcl2_BH4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lai D.Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nterPro; IPR002475; BCL2_family.nterPro; IPR004725; Bcl2_reg.
                                                                                                                                                       177
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                                                                                                                                                                                                                                                                                                          28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG------
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                                                                                                                                                    YLNRHLHTWIQDNGGWDAFVELYGPSVRPLFDFSWL
                                                                                                                                                                                                                                                                                      MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                           VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                         FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL
                                                                                                                                                                                                 FTAR---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DCVRQAQPAMVHALVDCLGEFVRK--TLATWLRRRGG
                                                                                                                                                                                                                     LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE
                                                                                                                                                                                                                                                                                                                              l Similarity
47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                 PS50062; BCL2_FAMILY; 1.
PS01080; BH1; UNKNOWN 1.
PS01258; BH2; UNKNOWN 1.
PS01259; BH3; UNKNOWN 1.
PS01260; BH4_1; UNKNOWN 1.
PS01260; BH4_1; UNKNOWN 1.
PS01260; BH4_2; 1.
 Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chen W.,
                                                                                                                                                                                                                                                              -GRLAEVCTVLLRLGDELEQIRPSVYRNVAR-----
                                                   (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.)
                                                                                                                                                                                                                                                                                                                                                                         236
                                                                                                 PRELIMINARY;
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BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wang
 Chordata;
Rodentia;
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Last sequence
Last annotation
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                                                                                                                                                                                                                                                                                                                                        Score 158;
Pred. No.
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Last annotation updat
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Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                 PRT;
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                                                     sequence update) annotation updat
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             Euteleostomi;
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Best Local
              STRAIN=B6/CBA; TISSUE-THYMUS; MEDLINE-98051053; PubMed-9390687; Yang X.-F., Weber G.F., Cantor H.; "A novel Bcl-x isoform connected to apoptosis in T cells."; Immunity 7:629-639(1997).
EMBL; U51278; AAC53459.1; --
HSSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                             035844;
01-JAN-1998 (
01-JAN-1998 (
01-JUN-2002 (
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SMART; SM00265; BH4; 1.
TIGREAMS; TIGR00865; bcl-2; 1.
PROSITE; PS50062; BCL2_FAMILY;
PROSITE; PS01080; BH1; 1.
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InterPro;
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                                                                                                                                                                                                                                          Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                 035844
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                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                      Mus musculus
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                                                                                                                                                                                                                  NCBI_TaxID=10090;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VRKTLATWLRRRGGW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGNPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
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PS01260;
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IPR002475;
IPR004725;
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                                                                                                                                                                                                                       ıs (Mouse).
Metazoa; Chordata; C
-~+heria; Rodentia; (
                                                                                                                                                                                                                                                                                                                                             3 (TrEMBLrel.
3 (TrEMBLrel.
2 (TrEMBLrel.
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                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
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BCL2_family.
Bcl2_reg.
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22.1%;
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bred. No. 7.3e-06;
                                                                                                                                                                                                                                                                                                                                             Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                          Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
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                                                                                                                                                                                                                                                                 Euteleostomi;
                                                                                                                                                                                                                                            Murinae;
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RESULT
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Best Local
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Q9QWX2;
Q1-MAY-2000
01-MAY-2000
01-JUN-2002
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PROSITE; P
PROSITE; P
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                                           SMART;
SMART;
                                                                         Pfam;
                                                                                                                                       "Bc1-x and Bax regulate mouse primordial apoptosis during embryogenesis."; mol. Endocrinol. 14:1038-1052(2000). EMBL; AF088904; AAC72232.1; -.
                                                                                                                                                                                                                                     Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                               BCL2L.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
PROSITE; PS50062; BCL2_FAMILY; PROSITE; PS61080; BH1; 1. PROSITE; PS61259; BH3; 1. PROSITE; PS61260; BH4_1; 1.
                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE=20350651; PubMed=10894153;
                                                                                                                                                                                                                                                                                         Bcl-x (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                Pfam;
                                                                                                                   HSSP; P53563; 1AF3.
MGD; MGI:88139; Bc121.
                                                                                                                                                                                   Rucker E.B. III, Dierisseau P., Wagner K.U.,
Wynshaw-Boris A., Flaws J.A., Hennighausen L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                     InterPro;
                                                                                              InterPro; IPR000712; InterPro; IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                             115
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----SPAPGGR-----
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                                                                                                                                                                                                                                                                                                                                                                                                                      VRKTLATWLRRRGGWTDVLKCVVST-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF
                                                              Pro; IPR002475; 1
PF00452; Bc1-2;
PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                            -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PF02180; BH4; 1.
                                           SM00337; BCL;
SM00265; BH4;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IS; TIGRO0865; bcl-2; 1.
PS50062; bcl2_FAMILY; 1
PS501080; BH1; 1.
PS01258; BH2; 1.
PS01259; BH4; 1.
PS01259; BH4, 1; 1.
PS01269; BH4, 1; 1.
PS01260; BH4, 2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
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                                                                                                                                                                                                                                                                                                     (TrEMBLrel. 13, (TrEMBLrel. 13, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
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174 LNDHLEPWIQENGGW 188
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                                                                                                                                                                                                                            57 WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI-- 114
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ARI1 XENLA
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BCLW HUMAN
BCLA HUMAN
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rattus norv
homo sapien
nus scrofa
homo sapien
sus scrofa
homo sapien
kenopus lae
gallus gall
hus musculu
hos taurus
                               B homo sapien
mycobacteri
homo sapien
mus musculu
homo sapien
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rattus norv
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rattus norv
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mus musculu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bos taurus
cricetulus
      sus scrota
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45	44	43	42	41	40	3 9	38	37	36	ω 5	34
77	78.5	79.5	79.5	80.5	80.5	80.5	82.5	82.5	83	84	85
7.0	7.1	7.2	7.2	7.3	7.3	7.3	7.5	7.5	7.5	7.6	7.7
205	1075	672	406	385	372	319	1081	.535	177	941	552
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GTS1_ASCSU	CNRA_ALCEU	ACSA_PHYBL	WCAL_SALTY	RURE_PSEOL	GDF1_HUMAN	MOCB_SYNP7	CARB_SYNY3	SSDH_HUMAN	NR13_COTJA	DNAB_RHOMR	SMA4_RAT
					•						
P46436	P37972	Q01576	P26388	P17052	P27539	Q56208	Q55756	P51649	Q903 <b>4</b> 3	030477	070437
ascaris suu			salmonella				synechocyst			rhodothermu	rattus norv

## ALIGNMENTS

88888888888	CCCCCCR44888888888	2	RESU BCL12 PC PC PC DT DT DT DT DT OS OS OS
	SEQUENCE OF 19-172 FROM N.A.  Castren E., Ohga Y., Berzaghi M.P., Tzimagiorgis G., Thoenen H.,  Lindholm D.;  "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain.";  "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain.";  Neurosclence 61:165-177(1994).  -1- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1).	SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  TISSUE-Brain;  MEDLINE-94193015; PubMed-8144041;  Sato T., Irie S., Krajewski S., Reed J.C.;  "Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.";  Gene 140:291-292(1994).  [2]  SEQUENCE FROM N.A.  STRAIN-Sprague-Dawley; TISSUE-Ovary;  MEDLINE-95129487; PubMed-7828536;  Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;  "Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulosa cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels."; Endocrinology 136:232-241(1995).	RESULT 1  BCL2_RAT STANDARD; PRT; 236 AA.  DC P49950; 062837; Q64032; DT 01-CCT-1996 (Rel. 34, Created) DT 01-NOV-1997 (Rel. 35, Last sequence update) DT 15-JUN-2002 (Rel. 41, Last annotation update) DE Apoptosis regulator Bcl-2. GN BCL2 OR BCL-2. GN BCL2 OR BCL-2. GN Rattus norvegicus (Rat). OC Rattus norvegicus (Rat). OC Mammalia; Eutherla; Rodentia; Sciurognathi; Muridae; Murinae; Rattus. OX NCBI_TaxID=10116;

localized

in the neuroepithelium

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Qy
                                                  Db
                                                                                                                                                              Query Match
Best Local
                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS50062;
PROSITE; PS01080;
PROSITE; PS01258;
PROSITE; PS01259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; L14680; I
EMBL; U34964; I
EMBL; S74122;
HSSP; Q07817; 1
                                                                                                                                                                          MOD_RES
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                              SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                       SMART; SM00337; BCL;
SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM
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                                                                                                                                                                                                                                                                         DOMAIN
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                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                             Apoptosis
                                                                                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                          TIGRFAMS;
                                                                                                                                                                                                                                                                                                                                                                                                                                     SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           modified and this statement is not removed
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                                                                                                                                                                                                                                                            TRANSMEM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
61
                          62
                                                                             28
                                                  \mathbf{L}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dephosphorylated by protein phosphatase 2A (PPZA) (By similarity). PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      European Bioinformatics Institute. The by non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protections such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       brain, expression is higher and in the cortical plate. DOMAIN: The BH4 domain is r for interaction with RAF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PTM: Phosphorylation/dephosphorylation on
VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA
                                                                             VAQAKALG-----
                       ----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR---
                                                                                                        . Similarity
52; Conser
                                                                                                                                                                                                                                                                                                                                          PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                        TIGR00865; bcl-2; 1.
PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR003093; Bcl2_BH4
IPR004725; Bcl2_reg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR002475; BCL2_family
                                                                                                     15.2%;
ilarity 23.3%;
Conservative 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 expression is higher and the cortical plate.
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90
133
184
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                                                                                                                                                              AA;
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                                                                                                                                                                                      30
104
152
199
230
230
70
157
164
                                                                            REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                              26622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bcl2_BH
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                                                                                                                                                                                                                                                                                                                          Mitochondrion; Phosphorylation
                                                                                                        36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   is required for anti-apoptotic
                                                                                                                                                                                                                                          BH3.
BH1.
BH2.
POTENTIAL.
CLEAVAGE (BY CASPASES)
                                                                                                     Score 167.5; DB 1;
Pred. No. 5.9e-08;
5; Mismatches 78;
                                                                                                                                                         PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

A -> R (IN REF. 2).

E -> G (IN REF. 1).

S -> Y (IN REF. 2).

L -> Q (IN REF. 2).

; E7668CB9071A872A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (By similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ser-70 regulates
                                                                                                                             Length
                                                                                                        Indels
                                                                                                                                                                                                                                             (BY SIMILARITY).
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                                                                                                                                236;
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                       QLHI-P 96
                                                                                                      57;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               collaboration
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002718;
16-0CT-2001
                                                                   between
the Euro
                                                                                                                                             1 1 1 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    with suppression of of Bcl-2.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=Holstein; TISSUE=Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bos taurus (Bovine)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Reyes R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Bovine leukemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6-OCT-2001
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                                                                                                                                     cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytos promoting further caspase activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH4) DOMAIN. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN. SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                   veen the Swiss Institute of Bioinf
European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                              similarity).

DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By interaction).
                                                                                                                                                                                                                                                                                                           similarity)
                                                                                                                                                                                                                                                                                                                        occurs during the 62/M phase of the cell cycle (By similarity). the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD
                                                                                                                                                                                                                                                                                          PTM: Proteolytically
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      permeability. Appears to function in a feedback loop system caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      release of cytochrome c from the mitochondria and/or by binding to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          including factor-dependent lymphohematopoietic and neural cell. Regulates cell death by controlling the mitochondrial membrane
                                                                                  SWISS-PROT entry is copyright. It is produced through
en the Swiss Institute of Bioinformatics and the EM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bovinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel. 40, Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cockerell G
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Suppresses apoptosis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   virus associated-leukemogenesis is correlated of programmed cell death and increased expres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bos
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lacking the
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BH4 domain,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           feedback loop system with
                                                                                                                                                                                                                                                                                        during apoptosis.
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                                                                                                                                                                                                                                                      cytosol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BAD, BAK and
                                                                                          a collaboration
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cells
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Matches
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Best Local
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SMART; SM00337; I
SMART; SM00265; I
TIGREAMS; TIGROO
                                                                                                                                 BCL2_CRILO STANDARD; PRT; 236 AA. 09JJV8; 16-OCT-2001 (Rel. 40, Created) 16-OCT-2001 (Rel. 40, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                              MOD_RES
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS01080; BH1; PROSITE; PS01258; BH2; PS01259; BH3;
          MEDLINE=20431763; PubMed=10973819;
Tomicic M.T., Christmann M., Kaina B.;
"Cloning and functional analysis of cDNA encoding protein.";
                                                                                                       Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                             CRILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
DOMAIN
                                                                                      Cricetulus.
                                                                                                      Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL;
HSSP;
                                                 TISSUE-Ovary
                                                         SEQUENCE FROM N.A.
                                                                          NCBI_TaxID=10030;
                                                                                             Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS01259;
PROSITE; PS01260;
PROSITE; PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGREAMS; TIGRO0865; bc1-2; 1.
PROSITE; PS50062; BCL2_FAMILY;
 Biochem. Biophys. Res. Commun. 275:899-903(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                 193 GPSMRPLFDFSWL-----SLKALLSLAL 215
                                                                                                                                                                                                                                                   180 -VSTKPGFRSHWLVATLCSFGRFLKAAFFLLL 210
                                                                                                                                                                                                                                                                                                                                 67
                                                                                                                                                                                                                                                                                                              77
                                                                                                                                                                                                                                                                                                                                                   17 KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPPAAAAGPAP
                                                                                                                                                                                                                                                                                                                                                                   37 EYVHARLLRAGLSW-----SAPERASPAPG-----GRLAE----
                                                                                                                                                                                                                                                                       NWGRIVAFFEFGGVMCVESVNREMSPLVDSIALWMTEYLNRHLHTWIQDNGGWDAFVELY 192
                                                                                                                                                                                                                                                                                          TWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 179
                                                                                                                                                                                                                                                                                                              SPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----ERFATVVEELFRDGV
                                                                                                                                                                                                                                                                                                                                -----VCTVLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFSAGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF0045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                U92434; AAB53319.1;
Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                         49;
                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            )0265; BH4;
TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                                             10
64
69
83
126
177
202
34
63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                               A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        30
68
72
72
145
192
223
                                                                                                                                                                                                                                                                                                                                                                                                                              35
63
25099
                                                                                              Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                15.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bc12_BH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                               WW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mitochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                           POLY-ALA.

POLY-ALA.

BH3.

BH1.

BH2.

POTENTIAL.

POTENTIAL.

CLEAVAGE (BY CASPASES) (BY SIMILARITY).

PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

MW; ADIDDOAF98FFF11D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                         36;
                                                                                                                                                                                                                                                                                                                                                                                                 Score 164.5; DB 1;
Pred. No. 1.1e-07;
                                                                                             Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -
                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                        76;
                    the
                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                        Length
                   hamster Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                          229;
                                                                                                                                                                                                                                                                                                                                                                                         51;
                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                              132
                                                                                                                                                                                                                                                                                                                                                   76
                                                                                                                                                                                                                                                                                                                                                                                       7;
 PROSITE;
                                                                                                               PROSITE;
                                                                                                                                                                                                                                                                                                              This
                                                                                                                                 SMART; SM00337; BCL;
SMART; SM00265; BH4;
TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                           -
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           SITE
                             DOMAIN
                                      DOMAIN
                                                DOMAIN
                                                                                                                                                              Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                           the
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 MOD_RES
                   TRANSMEM
                                                         DOMAIN
                                                                 Apoptosis;
                                                                                                                                                                                                    InterPro; IPR002475;
InterPro; IPR000712;
                                                                            PROSITE;
                                                                                                       PROSITE;
                                                                                                                                                                                 InterPro; IPR003093; InterPro; IPR004725;
                                                                          3; PS50062; BCL2_FAMILY; 1

5; PS01080; BH1; 1.

5; PS01258; BH2; 1.

6; PS01259; BH3; 1.

7; PS01260; BH4_1; 1.

8; PS01260; BH4_1; 1.

8; PS50063; BH4_2; 1.
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망 δõ В Ş B δÃ 밁 δÃ

Transmembrane;

Mitochondrion; Phosphorylation

; Bcl2\_BH. ; Bcl2\_BH4. ; Bcl2\_reg.

BCL2\_family.

bc1-2;

10 90 133 184 209 . 64

104 152 152 199 230 65

BH4.

BH3.

BH1.

BH2.

POTENTIAL.

CLEAVAGE (BY CASPASE-3 AND CASPASE-9).

PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

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the apoptosis - activating factor (APAF-1) (By similarity).

SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and BC1-x(L). Heterodimerslation with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity).

SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.

DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).

PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A)

PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the B44 domain, has pro-apoptosic activity, courses the release of cytochrome c into the cytosol promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
EMBL; AJ271720; CAB92245.1; HSSP; Q07817; 1MAZ.
                                                                                                           entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                    use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [2]
SEQUENCE FROM N.A.,
SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochem. Biophys. Res. Commun.
                                                                                                                                                                                                                                                                                                   between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Hamster Bcl-2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tomicic M.
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                                                                                                                                                                                                                                                     s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       caspase-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a fedback loop system with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein is
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                                                                                                                                                                                                                       institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cleaved in
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                                                                                                                                              (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                    Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'n
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SO

Best Loc Matches

Local

28

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intact BAX,

and

BAK

the absence other

lation of

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Query Match
                                                                                                                                    Deng X., Ito T., Carr B., Mumby M., Peng X., Ito T., Carr B., Mumby M., Reversible phosphorylation of Bcl2 bryostatin 1 is mediated by direct inhospharase 2A*."
                                                                                                                                                                                                                                                                                                                                                                                   MEDILINE-9375724; PubMed-1508712;

Eguchi Y., Ewert D.L., Tsujimoto Y.;

EJuchi Y., Ewert D.L., Tsujimoto Y.;

"Isolation and characterization of the chicken including lymphoid and
                                                                                                                                                                                                                                                    MEDLINE=97277291; PubMed=9115213;
Ito T., Deng X., Carr B., May W.S. Jr.;
"Bcl-2 phosphorylation required for anti-apoptosis
J. Biol. Chem. 272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Negrini M., Silini E., Kozak C., Tsujimoto Y., Croce C.M.; "Molecular analysis of mbcl-2: structure and expression of the murine gene homologous to the human gene involved in follicular lymphoma."; Cell 49:455-463(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=87187643; PubMed=3032455;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-BALB/c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCL2_MOUSE STANDARD; PRT; 2
P10417; P10418;
01-MAR-1989 (Rel. 10, Created)
01-APR-1993 (Rel. 25, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
                                                                                                                                                                                                  MEDLINE=99069407;
                                                                                                                                                                                                                                                                                                                       PHOSPHORYLATION BY PKC,
                                                                                                                                                                                                                                                                                                                                                                     adult and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                                                                                                         Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                         REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Apoptosis regulator
                                                                                                                                                                                                                     DEPHOSPHORYLATION BY PP2A
             permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding the
                                                               iol. Chem. 273:34157-34163(1998). FUNCTION: Suppresses apoptosis in a variety of including factor-dependent lymphohematopoietic Regulates cell death by controlling the mitoche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OR BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FTAR----GREATVVEELERDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR---------
   apoptosis-activating
                                                                                                                                                                                                                                                                                                                                                       Acids
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ą,
                                                                                                                                                                                                     PubMed=9852076;
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                                                                                                                                                                                                                                                                                                                     AND MUTAGENESIS
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   factor
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BECADF1EF3337228 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                  ., May W.S. Jr.;
l2 following inte
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                                                                                                                                                                                                                                                                                                                       SERINE
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                                                                    mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79;
                                                                                                                                                   interleukin
n with prote
                                                                                                                                                                                                                                                                                                                                                                                      bcl-2 gene: expression
neuronal organs in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   219
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                                                                                                                                                                   or
                                                                                  cells.
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                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; L31532; AAA37282
EMBL; M16506; AAA37281
EMBL; M16506; TVMSA1.
PIR; A25960; TVMSA1.
PIR; B25960; TVMSB1.
PIR; B25960; TVMSB1.
PIR; B37332; E37332.
                                                                                                                                                                                                                                                                 PROSITE;
                                                                                                                                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This
                                SEQUENCE
                                                                                                   SITE
                                                                                                                                                                                                                                                                                                                                   SMART; SM00337; BCL;
SMART; SM00265; BH4;
TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long modified and this statement is not removed
                                                                                  ğ
                                                                                                                                    DOMAIN
                                                                                                                                                   DOMAIN
                                                                                                                                                                 DOMAIN
                                                                                                                                                                                                Apoptosis; Alter
Phosphorylation
                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000712; Bc12_BH.
InterPro; IPR003093; Bc12_BH4
InterPro; IPR004725; Bc12_reg
                                                                   VARSPLIC
                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MGD; MGI:88138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  between
                                                                                                                   RANSMEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitcochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PTM: Proteolytically cleaved by caspases during apoptosis cleaved protein, lacking the BH4 domain, has pro-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dephosphorylated by protein phosphatase 2A (PP2A)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 occurs during the G2/M phase of the cell cycle. In the growth factors, Bcl2 appears to be phosphorylated by kinases such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                are produced by alternative splicing. TISSUE SPECIFICITY: Expressed in a va
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: Forms homodimers, and heterodimers with Bcl-x(L). Heterodimerization with BAX requires in domains, and is necessary for anti-apoptotic act.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 activity, causes the release of cytochrome c into the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tor interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN: The BH4 domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SWISS-PROT entry is copyright. It is produced through
                                                                                                                                                                                                                                                                                                    PS50062;
PS01080;
                                                                                                                                                                                                                                                                 PS01258;
PS01259;
                                                                                                                                                                                                                                    PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                   Alternative
                                236
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90
133
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193
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AAA37282.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAA37281.1;
                                <u>Α</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bcl2.
                                                                                                                                                                                                                                                                                                    вн1;
                                                                                                                                                                                                                                  BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                                                   BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Institute of Bioinformatics
                                                                   104
152
199
230
230
235
236
                                26425
                                                                                                                                                                                                                                                                                                                                    bc1-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCL2_family.
Bcl2_BH.
   14.3%;
                                                                                                                                                                                                                 splicing;
                                WW.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               is required for
                                                                               BH2.
POTENTIAL.
CLEAVAGE (BY CASPASES) (BY SIMILARITY).
PHOSPHORYLATION (BY PKC).
 Score
                                              DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL GHK -> VGACLVE (IN ISOFORM BETA).
                                AA85EF6B0766BE0A
                                                                                                                                                                                                                   Transmembrane; Mitochondrion;
   157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  removed.
5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (See http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  variety of tissues
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2 (BH2) DOMAIN.
3 (BH3) DOMAIN.
1 (BH4) DOMAIN.
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RESULT 5
AR1_XENLA
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                                                                                                                                                                                                                                                                                AR1_XENLA
Q91827;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Apoptosis regulator R1 (XR1) (Fragment).
Apoptosis regulator R1 (XR1) (Fragment).
Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Thinkle Annra: Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                             InterPro; IPR002475;
InterPro; IPR000712;
                                                                                                                                                                                        entities requires a license agreement (some send an email to license@isb-sib.ch).
                                                                                                                                                                                                              modified and this statement is not removed.
                                                                                                                                                                                                                                    the European
                                                                                                                                                                                                                                                                                                                                                                                                                Cruz-Reyes J., Tata J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea;
Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-UN-2002 (Rel. 41, Last annotation updat
                                                                      SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                                                                                            Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=8355;
                                 PROSITE; PS01258; PROSITE; PS50062;
                                                        PROSITE; PS01080;
                                                                                                                   InterPro;
                                                                                                                                                       HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                     "Cloning, characterization and expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
            Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         177
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                     X82462; CAA57845.1;
Q07817; 1MAZ.
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                                                                                                                                                                                                                        pean Bioinformatics Institute. The non-profit institutions as long
                                                                                                                  IPR003093;
                       Transmembrane.
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120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                              BH2;
                                                        BH1;
                                  BCL2_FAMILY;
                                                                                                                             BCL2_family.
Bcl2_BH.
                                                                                                                  Bc12_BH4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22.4%;
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вн1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228
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                                                                                                                                                                                                 (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                    There are
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                                                                                                                                                                                                                                                                                                                                                                                                      of two Xenopus bcl-2-like
                                                                                                                                                                                                                         as its content
                                                                                                                                                                                                              Usage
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Apoptosis regulator Bcl-BCL2 OR BCL-2.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHICK
                                                                                                                                                                                                                                                                                                                                                                      Cazals-Hatem D.L., Louie D.C., Tanaka S., Reed J.C.;
"Molecular cloning and DNA sequence analysis of cDNA encoding chicken homologue of the Bcl-2 oncoprotein.";
Biochim. Biophys. Acta 1132:109-113(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-APR-1993 (Rel. 25, Last
01-APR-1993 (Rel. 41, Last
15-JUN-2002 (Rel. 41, Last
                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=B-cell lymphoma;
MEDLINE=92379084; PubMed=1511008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=92375724; PubMed=1508712;
Eguchi Y., Ewert D.L., Tsujimoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-APR-1993
01-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q00709;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
                                      <del>:</del>
                                                                       <u>:</u>
                                                                                                                                          -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              adult and embryo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eguchi Y., Ewert D.L., Tsujimoto Y. "Isolation and characterization of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Archosauria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCL2_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19 DRWPTDKELVAQ----AKALGREYVHARLLRAGLSWSAPERASPAPGGRLAEVC---TVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          solation and characterization of the chicken bcl-2 gene: explantion of tissues including lymphoid and neuronal organs
                                                                                                   Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLUIAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. TISSUE SPECIFICITY: In adult chicken expressed, in thymus, spleen, kidney, heart, ovary and brain, with the highest levels in the thymus. In the embryo, highly levels expressed in all tissues with
DOMAIN: The BH4 domain is required for anti-apoptotic for interaction with RAF-1 (By similarity).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                      the apoptosis-activating factor (APAF-1). SUBUNIT: Forms homodimers, and heterodimers with
                                                                                                                                                                                                                                                                      Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding t
                                                                                                                                                                                                                                                                                                                                                         FUNCTION: Suppresses apoptosis in a variety of cell systems
                                                                                       high levels in the bursa of Fabricius
                                                                                                                                                                                                                                                                                                                                        including factor-dependent lymphohematopoietic and neural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AALCAESVNKEMSPLLPRIQDWMVTYLETNLRDWIQSNGGWNGFL
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Pred. No. 7.4e-07;
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InterPro; IPR000712; Bcl2_BH.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR004725; Bcl2_reg.
InterPro; IPR004725; Bcl2_reg.
Pfam; PF00482; Bcl-2; 1.
SMART; SM00337; BCL; 1.
SMART; SM00337; BCL; 1.
TIGRAMS; TIGR00865; bcl-2; 1.
TIGRAMS; TIGR00865; bcl-2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
PROSITE; PS01260; BH1; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS01260; BH4_2; 1.
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L; D11381; BAA0197
L; Z11961; CAA7801
L; A37332; A37332;
S24390; S24390.
P; Q07817; IMAZ.
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45; Conser
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STANDARD: PRT; 23
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Rel. 10, Created)
Rel. 25, Last sequence upd
Rel. 41, Last annotation u
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E -> S (IN REF. 2).
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G -> V (IN REF. 2).
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Pred.
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 Science
[9]
                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-91066924; PubMed-2250705; MILLIMAN C., Nunez G., Milliman C.,
                                                                                                                                                 "Conversion
                                                                                                                                                                                                                                Nature
[8]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. (ISOFORM ALDHA).
MEDLINE=87002488; PubMed=2875799;
Cleary M.L., Smith S.D., Sklar J.;
"Cloning and structural analysis of cDNAs i
2/immunoglobulin transcript resulting from
translocation.";
                                                            REVIEW ON PHOSPHORYLATION MEDLINE=21260650; Pubmed=Ruvolo P.P., Deng X., May
                                                                                                                                                                                                                    CLEAVAGE
                                                                                                                                                                                                                                                                                                                                                      Nature
[7]
                                                                                                                                                                                                                                                                                                                                                                                 Hockenbery D., Nunez G., Milliman C., Schreiber R.D., Korsmeyer S.J.; "Bcl-2 is an inner mitochondrial membrane protein that blocks programmed cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tanaka S., Louie D.C., Kant J.A., Reed J. "Frequent incidence of somatic mutations oncogenes of non-Hodykin's lymphomas."; Blood 79:229-237(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Alternative promoters and exons, of the Bcl-2-Ig fusion gene in lymemBo J. 7:123-131(1988).
 PHOSPHORYLATION
                                                                                                                                                                                                                                                                   apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 1-131 FROM N.A. (ISOFORM MEDLINE-92096610; PubMed=1339299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=88196071; PubMed=2834197;
MEDLINE=88196071; PubMed=2834197;
Seto M., Jaeger U., Hockett R.D., G
Goldman P., Korsmeyer S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REVISIONS TO 96; 110 AND MEDLINE=92375724; PubMed-Eguchi Y., Ewert D.L., Ts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=9606;
                                Leukemia
                                                                                                                                                                                               CLEAVAGE BY CASPASES, MEDLINE=98057466; Pub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cell 47:19-28(1986).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. (ISOFORMS ALPR
MEDLINE=86259760; PubMed=3523487;
                             Phosphorylation of Leukemia 15:515-522
                                                                                                                                                                                                                                                                                in X.-M., Oltvai Z.N.,
BH1 and BH2 domains of
                                                                                                                                                                                                                                                                                                                 MEDLINE=94239528;
                                                                                                                                                                                                                                                                                                                                    MUTAGENESIS
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"Analysis of the structure,
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BCL2.
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                                                                                                                                                                                 E.H. -Y.,
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                                                                                                                                                                                                                                                 sis and heterodimerization 369:321-323(1994).
                                                                                                                                                                                                                                                                                                                                                                  348:334-336(1990).
                                                                                                                                                 .H.-Y., Kirsch D., Hardwick J.M.; sion of Bcl-2 to
                                                                                                                            sion of Bcl-2 to a Ba
278:1966-1988(1997).
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ВУ
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; PubMed=1508712;
D.L., Tsujimoto Y.
                                                                                                                                                                            PubMed=9395403;
rsch D.G., Clem R.J.,
                                                                                 PubMed=11368354;
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 ASK1/JNK1
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Primates;
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in human follicular lymphoma.";
.S.A. 83:5214-5218(1986).
                                                                                                                                                 Bax-like
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for bcl-2 and n the t(.14;18)
                                              apoptosis.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translocated
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AND

VARIANTS

BCL2

Bennett

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hybrid

bcl-

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deregulation

inhibition

of

Kastan

м.в.,

Bedi A.,

by caspases.";

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InterPro;
InterPro;
                                                                                                                                                     PIR;
PIR;
                                                                                                                                                                                           EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
Mol. Cel
                                                                                                                                                                                                                                                                          use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                            This
                                                                                               Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ÷
                            InterPro;
                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yamamoto K.,
"BCL-2 is ph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WEDLINE=20036804; PubMed=10567572;
                                                                                                                                                                            NL; M13995; AAA51814.1; AL; M14745; AAA35591.1; AL; W16487; CAA29778.1; AL; W16487; CAA29778.1; ST, S72602; AAD14111.1; AL; A22409; TVHUA1.
                                                                                                                        B29409; TVHUB1.
A24428; TVHUBC.
C37332; C37332.
D37332; D37332.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the apoptosis-activating factor (APAF-1).
SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1.
SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoletic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding the
                                                                                                                                                                                                                                                                                                                             ween the Swiss Institute of Bioinf
European Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         membrane of the nuclear envelope and the endoplasmic reticulum ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta; are produced by alternative splicing.
TISSUE SPECIFICITY: Expressed in a variety of tissues.
DOMAIN: The BH4 domain is required for anti-apoptotic activity for interaction with RAF-1.
                                                                                                                                                                                                                                                                                                                           SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                          DATABASE: NAME-Atlas Genet. Cytogenet. Oncol. Haematol.;
WWW-"http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
                                                                                                                                                                                                                                                                                                                                                                                                   DATABASE: NAME=Atlas Genet.
                                                                                  151430;
                                                                                                                                                                                                                                                 M13994; AAA51813.1;
                                                                                             HGNC:990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 is phosphorylated and inactivated by an ASK1/Jun n \in \mathbb{R}^{n}, kinase pathway normally activated at G(2)/M.";
); IPR002475; BCL2_family

); IPR000712; BC12_BH.

); IPR003093; BC12_BH4.

); IPR003725; BC12_reg.

; IPR00472; BC12_reg.

; 600452; BC1-2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      kinase pathway normally activated
ll. Biol. 19:8469-8478(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ichijo H., Korsmeyer S.J.;
                                                                                                            1MAZ
                                                                    BCL2_family.
                                                                                                                                                                                                                                  ALT_SEQ.
                                                                                                                                                                                           ALT_SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      variety of tissues. for anti-apoptotic activity and
                                                                                                                                                                                                                                                                                                                 as its content
                                                                                                                                                                                                                                                                                    http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                   Usage
                                                                                                                                                                                                                                                                                                      bу
                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-terminal
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BCLX
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                                                                                                           RESULT
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                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE; PS50062; BCL2_FAMILY; 1
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS50063; BH4_2; 1.
                                 _MOUSE
BCLX_MOUSE STANDARD; PRT; 233 AA Q64373; Q60657; Q60658; Q61338; Q1-NOV-1997 (Rel. 35, Created) G1-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                            CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                      Apoptosis regulator Bcl-x. BCL2L1 OR BCL2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            MUTAGEN
MUTAGEN
            Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00265; BH4; TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                           MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Polymorphism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Proto-oncogene; Apoptosis; Alter Mitochondrion; Phosphorylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARSPLIC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                170
                                                                                                                                                                                     133
                                                                                                                                                                                                         110
                                                                                                                                          193 GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                            8
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                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                                        17
                                                                                                                                                                                                                                                                                          37 EYVHARLLRAGLSW-----SAPERASPAPG------GRLAEVCT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RES
                                                                                                                                                                GGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                      VAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR
                                                                                                                                                                                                                                                                      KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                   VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN
                                                                                                                                                                                                                              APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR-----GRFAT
                                                                                                                                                                                                                                                                                                                  1 Similarity
46; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SM00337;
  Metazoa;
                                                                                                                                                                                                                                                                                                                                                             239 AA;
                                                                                                                                                                                                                                                                                                                  Conservative
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93
136
187
212
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59
117
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             (Mouse)
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64
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disease
                                                                                                                                                                                                                                                  -----VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA
                                                                                                                                                                                                                                                                                                                                                                                  48
59
117
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64
145
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155
202
233
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 Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93
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                                                                                                                                                                                                                                                                                                                                                             26266
                                                                                                                                                                                                                                                                                                                            14.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mutation
                                                                                                                                                                                                                                                                                                                                                             MW.
                                                                                                                                                                                                                                                                                                                 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alternative splicing; Transmembrane; tion; Chromosomal translocation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.

CLEAVAGE (BY CASPASE-3).

PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

DAFVELYGPSWRPLEDDSWLSLKTLLSLALVGACITLGAYL

GHK -> VGASGDVS (IN ISOFORM BETA).
                                                                                                                                                                                                                                                                                                                                                                     LOSS OF ANTI-APOPTOTIC ACTIVITY.
W->A: NO HETERODIMERIZATION WITH BAX AND
LOSS OF ANTI-APOPTOTIC ACTIVITY.
I -> F (IN REF. 4).
P -> T (IN REF. 3).
S -> R (IN REF. 3).
R -> C (IN REF. 4).
                                                                                                                                                                                                                                                                                                                         Score 153.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                D->A:
D->A:
G->A:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /FTId=VAR_000828
V -> I (IN NON-H
Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /FTId=VAR_000829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /FTId=VAR_000827.
                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                             3C49F2B714DC9CCB
                                                                                                                                                                                                                                                                                                                                                                                                                                              ABOLISHES CLEAVAGE BY CASPASE-3.
NO EFFECT ON CLEAVAGE BY CASPASE-3
NO HETERODIMERIZATION WITH BAX AND
                                                                                                                                                                197
                                                                                                                                          222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (IN NON-HODGKINS-LYMPHOMA; SOMATIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (IN NON-HODGKINS-LYMPHOMA;
                                          update;
                                                                                                                                                                                                                                                                                                            1.1e-06;
74;
                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOMATIC
                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                  109
                                                                                                                                                                                                        169
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                                                                                                                                                                                                                                                                                                                 7;
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SEQUENCE FROM N.A.

MEDILINE-9789584; PubMed-9144489;

Grillot D.A., Gonzalez-Garcia M., Ekhterae D., Du
Ohta S., Seldin M.F., Nunez G.;

"Genomic organization, promoter region analysis,
"Genomic organization, promoter region analysis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thompson C.B., Nunez G.;
Thompson C.B., Nunez G.;
"bcl-XL is the major bcl-x mRNA form expressed during "bcl-XL is the major bcl-x mRNA form expressed during
          ++++
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yang X.-F., Weber G.F., Cantor H.;
"A novel Bcl-x isoform connected to
apoptosis in T cells.";
                                                                                                                                                                                     ÷
                                                                                                                                                                                                                                                                                                                                          -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. (ISOFORM X(BETA))
STRAIN-C57BL/6 X CBA; TISSUE-Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE=Pre-B cell;
MEDLINE=95052604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 development and its product localizes Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gonzalez-Garcia M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=95331139; PubMed=7607090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kamesaki H., Michaud
Submitted (MAR-1995)
The BH4 domain is required for anti-
The BH1 and BH2 domains are required for bot
with other Bc12 family members and for repre-
PTM: Proteolytically cleaved by caspases dur
similarity). The cleaved protein, lacking th
apoptotic activity (By similarity).
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   localization of the mouse bcl-x gene. J. Immunol. 158:4750-4757(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-98051053; PubMed-9390687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fang W., Rivard J.J., Mueller D.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-2A4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia; Eutheria; NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lymphocytes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Cloning and molecular characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mmunity 7:629-639(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Immunol. 158:4750-475/(1997).

FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, to it and preventing the mitochondrial membrane. The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Immunol. 153:4388-4398(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity). SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM). ALTERNATIVE PRODUCTS: 4 ISOFORMS; BCX-X(L) (SHOWN HERE), BCL-X(L) (SHOWN HERE).
                                                                                                                                                                                                                                                                                                          DEVELOPMENTAL STAGE: BCL-X(BETA)IS EXPIPOSTNATAL TISSUES, WHEREAS BCL-X(L) IS
                                                                                                                                                                                                                                                                                                                                                                                 TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       isoform promotes apoptosis. SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and
                                                                                                                                                                                                                                                                                   POSTNATAL TISSUES, POSTNATAL TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPLICING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BCL-X(BETA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FROM N.A. (ISOFUMMS
57BL/6; TISSUE-Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND BCL-X(DELTA-TM); ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=7963517;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ISOFORM X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ISOFORMS X(L); X(S) AND X(DELTA-TM))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perez-Ballestero R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Takatsu K., Okuma Ne EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AND X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the T cell receptor regulates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Behrens T.W.;
tion of mouse bcl-x in
                                                                                                                                                                                                     for repression of cell
                                                                                                                                                                                                                                                                                                          EXPRESSED IN BOTH EMBRYO
) IS PREDOMINANTLY FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ding L.,
                                                                                                                                                                                                                                    for both
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRODUCED
                                                                                                                                                                                                                                                         anti-apoptotic
                                                      (BH2)
(BH3)
                                                                                                          (BH1)
                                                                                                                                              during apoptosis
q the BH4 domain,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                            DOMAIN.
DOMAIN.
                                                                                                                                                                                                                                    heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HOWN HERE), BCL-X(S), BY ALTERNATIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Duan L., Boise L.H.,
                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                             AND BCL-X(DELTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chromosome
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to be
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EMBL; L35048;
EMBL; U10102;
EMBL; U10101;
EMBL; U10101;
EMBL; U10100;
EMBL; U101279;
EMBL; U78031;
EMBL; U78030;
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VARSPLIC
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PROSITE; F
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SMART; SM00265; BH4; 1.
TIGRFAMS; TIGR00865; bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                     SEQUENCE
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InterPro; IPR003093; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
InterPro; IPR004725; Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGD; MGI:88139;
174
                     158
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                                                                                                                                                                                  Local
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LNDHLEPWIQENGGW
                     VRKTLATWLRRRGGW 172
                                                                                      WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI-- 114
                                                               QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157
                                                                                                           ----SPAPGGR-
                                         -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY 173
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                                                                                                                                                                                                                                                                                                                                                                                                     PS50062;
PS01080;
PS01258;
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180
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AAA82173.1;
AAA82172.1;
AAC53460.1;
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AAA51040.1;
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AAB96881.1;
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22.1%;
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                                                                                                                                                                        Score 150.5;
Pred. No. 1.9e
29; Mismatches
                                                                                                                                                                                                                             -> GHDCGWCGSAGLTLQSEVTRH (IN X(DELTA-TM)).
                                                                                                                                                                                                                                                                                   POTENTIAL.
MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
                                                                                                                                                                                                                                                               BCL-X(BETA))
                                                                                                                                                                                                                                                                        FSRK -> VRTTPLVCPPLACVSLLCEHP (IN
                                                                                                                                                                                                                                                     LYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSLFSRK
                                                                                                          -LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
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There are no restrictions
ing as its content is in
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BCLX\_RAT
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RESULT

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J. Biol.
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"Expression of members of the bcl-2 gene family in the immature rat
ovary: equine chorionic gonadotropin-mediated inhibition of granulosa
cell apoptosis is associated with decreased bax and constitutive
bcl-2 and bcl-xlong messenger ribonucleic acid levels.";
Endocrinology 136:232-241(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
Rattus norvegicus (Rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P53563: Q62678; P70614; P70613; Q62836; Q64087; Q64128; Q1-QCT-1996 (Rel. 34, Created) Q1-NQV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Shiraiwa N., Inohara N., Okada S., Yuzaki M., Shoji·S.-I
"An additional form of rat Bcl-x, Bcl-xbeta, generated b
unspliced RNA, promotes apoptosis in promyeloid cells.",
J. Biol. Chem. 271:13258-13265(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Brain;
Wesselingh S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS). MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-Sprague-Dawley; TISSUE-Ovary; MEDLINE-95129487; PubMed-7828536;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE-Brain;
Michaelidis T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Aritomi M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-96278736; PubMed-8662675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Thymus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Crystal structure of rat Bcl-xL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
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activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
                                                                                                                                                                                       ALTERNATIVE PRODUCTS: 3 ISOFORMS; BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
TISSUE SPECIFICATY: EXPRESSED IN MOST TISSUES. BCL-X(BETA) IS
SPECIFICALLY EXPRESSED IN CERRBELLOW, HEART, AND THYMUS. IN THE
OVARY, THE PREDOMINANT FORM IS BCL-X(L), WITH A SMALL BUT
                                                                                                                                                                                                                                                                                           cytochrome c, from the mitochondrial membrane. The Bcl-x($) ar Bcl-x(beta) isoforms promote apoptosis.
SUBUNIT: Bcl-x(L) forms heterodimetation with BAX, BAK and Bcl-2 (similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
SUBCEILULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bcl-2 protein family.";
Biol. Chem. 272:27886-27892(1997)
                                                                                                                                                                      SPECIFICALLY EXPRESSED IN CEREBELLUM, HEART, OVARY, THE PREDOMINANT FORM IS BCL-X(L), WITH DETECTABLE LEVEL OF BCL-X(S).
                                                                                                                         DOMAIN: The BH4 domain is required for anti-apoptotic activity The BH1 and BH2 domains are required for both heterodimerizative with other Bc12 family members and for repression of cell deat
                                                                                                                                                                                                                                                                                                                                                                                                                   FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: Potent inhibitor of cell
                                                                                       cleaved protein,
                                                                                                                                                                                                                                                                                 ENVELOPE (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                     to it and preventing the release of the caspase
                                                                                                       Proteolytically
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kunishima N., Inohara N., Ishibashi Y.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ISOFORMS X(L) AND X(S)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (ISOFORMS
                                                                                                                       family members and for
                                                                                       ally cleaved by clacking the BH4
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Choi S., Veliuona M., Hardv EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL/GenBank/DDBJ databases
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AND X(BETA))
                                                                                       / caspases
14 domain,
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                                                                                                                                         for both heterodimerization
                                                                                                       repression of cell deathes during apoptosis. The
     (BH2)
(BH3)
(BH4)
                                                     (BH1)
                                                                                         has
                                                                                       pro-apoptotic
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DOMAIN.
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158
                 115
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                                                                                                      TDKELVAQAKALGREYVHARLLRAGLSWS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1AF3;
VRKTLATWLRRRGGW
                                                                                    SNRELVV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X82537;
U10579;
U72350;
U72349;
U34963;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SWISS-PROT entry
                                QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF
                                                   WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                  ----SPAPGGR-----
                                                                                                                                                                                                                                                                                                                                                                                   ; SM00337; BCL;
; SM00265; BH4;
AMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                              PF00452; Bc1-2; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S76513;
S78284;
                -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x82537;
                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                 PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                                                               IPR000712;
IPR003093;
IPR004725;
                                                                                                                                                                                                                                                                                                                                                   PS01259
                                                                                                                                                                                                                                                                                                                                                            PS01258
                                                                                                                                                                                                                                                                                                                                                                     PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                             PS50062;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR002475;
                                                                                                                                                       201
233
                                                                                                                                                                                                                                                                                                                          Mitochondrion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   07 - JU
                                                                                                                      Conservative
                                                                                                                                                                          12
64
81
119
143
199
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129
180
180
210
126
189
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54 64
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1199
201
201
26158 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAA57886.1;
CAA57887.1;
AAA19257.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Swiss Institute of Bio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAC60701.1;
AAC60702.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAC60701.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BELONGS TO THE
                                                                                                                                                                                                                                                                                                                                BH4_1;
BH4_2;
                                                                                                                                                                                                                                                                                                                                                           вн2;
                                                                                                                                                                                                                                                                                                                                                                           55; bcl-2; 1.
BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                   вн3;
                                                                                                                                                                                                                                                      100
148
195
226
233
                                                                                   DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGNPS
                                                                                                                                                                                                                                                                                                                                                                                                                            BCL2_family.
Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              license agreement
                                                                                                                             13.7%;
22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                institutions as long as its content
                                                                  -----LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
                                                                                                                                                                                                                                                                                                                          Alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALT_INIT.
                                                                                                                       29;
                                                                                                                                                              IDYSGDIPGLL (IN ISOFORM BC R -> Q (IN REF. 1). F -> S (IN REF. 2). A -> E (IN REF. 4). A -> T (IN REF. 4). FF -> SS (IN REF. 4). A -> P (IN REF. 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            is not removed. Usage by and for agreement (See http://www.isb-sib.
                                                                                                                                        Score
                                                                                                                                                                                                                                            MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERENRWFLTGMTVAGVVLLGSL
FSRK -> VRTTPLVCPPLVCLSSVEIPNCPFWSPGMVVED
                                                                                                                               Pred.
                                                                                                                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCL-2
                                                                                                                                                        2B62B6C63864BC8F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ght. It is produced through Bioinformatics and the EN
                                                                                                                       Mismatches
                                                                                                                              No.
                                                                                                                                        150.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FAMILY.
                                                                                                                                                                                                                                                                                                                        splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        There are no
                                                                                                                              .9e-06
                                                                                                      ---APERA----
                                                                                                                                        DB 1;
                                                                                                                       68;
                                                                                                                                                                                                                                                                                                                         Transmembrane;
                                                                                                                                      Length
                                                                                                                       Indels
                                                                                                                                                                                                                                     BCL-X(BETA))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        restrictions
                                                                                                                                        233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a collaboration
                                                                                                                      55;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'n
                                                                                                                     Gaps
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                                157
                                                  114
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
   Query Match
Best Local s
Matches 46
                                                                                                                                                                                                                                                                                                PROSITE; PS01259; BH3; PROSITE; PS50062; BCL2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1995
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BAXB_HUMAN
Q07814;
                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR002475; BC
InterPro; IPR000712; Bc
Pfam; PF00452; Bcl-2; 1
SMART; SM00337; BCL; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1995 (Rel. 31, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator BAX, cytoplasmic isoform beta
                                                                                                                                                                                                                                                                   apoptosis;
                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS01080; BH1; 1. PROSITE; PS01258; BH2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HSSP; Q07817;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIR; B47538; B47538.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; L22474; AAA03620.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    accelerates programmed cell Cell 74:609-619(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=93364978; PubMed=8358790;
Oltvai Z.N., Milliman C.L., Korsm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             мім; 600040;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3enew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Bc1-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TIDOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BBA, BBAX FOR THEIR PRO-APOPTOTIC ACTUITY AND FOR THEIR INWITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 by non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HOMOLOG E1B 19K PROTEIN.
SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS
E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
SUBCELLULAR LOCATION: Cytoplasmic.
ALTERNATIVE PRODUCTS: THE MEMBRANE ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ANTAGONIZING THE APOTOSIS REPRESSOR BCL-2 CHOMOLOG EIR 19% BOOMETU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CYTOPLASMIC ISOFORMS, BETA, ALTERNATIVE SPLICING.
         46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       heterodimerizes
      J108U,
J108U,
J108U,
J10258; BH2;
J201259; BH3; 1.
PS50062; BCL2_FAMILY; 1.
PS50062; BH3.
PS6006270F960192F CRC64;
PS60062; DB 1; Lengt'
PS6006250125 CRC64;
PS6006250125 CRC64;
PS6006250125 CRC64;
PS6006250125 CRC64;
PS6006250125 CRC64;
PS6006250125 CRC64;
PS600625 CRC65 CR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HGNC:959; BAX.
                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1MAZ
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Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bc12_BH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _family.
29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     death.";
   Score 148.5;
Pred. No. 2.76
Pred. Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Craniata; Vertebrata; Catarrhini; Hominidae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAMMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.ch/announce/
2.7e-06;
72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIETY OF TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALPHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOGETHER WITH BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ARE
                                                                  Length
         Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERATED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BAK, BAD AND INTERACTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                         218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   THE THREE
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         13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AND
         Gaps
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RESULT
BCLX_HU
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCLX_HUMAN STANDARD; PRT; 007817; 092976; 01-FEB-1995 (Rel. 31, Created) 01-FEB-1995 (Rel. 31, Last sequence up 15-JUN-2002 (Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                 Boise L.H., Gonzalez-Garcia M., Postema C.E. Turka L.A., Mao X., Nunez G., Thompson C.B.; "bol-x, a bol-2-related gene that functions of apoptotic cell death."; Cell 74:597-608(1993).
                     cell
                                                            Muchmore S.W.,
                                                                                                                                                               MEDLINE=97172562; PubMed=9020082; Sattler M., Liang H., Nettesheim
                                                                                                                                                                                                          "Bax-independent inhibition of apoptosis by Bcl-XL."; Nature .379:554-556(1996).
                                                                                                                                                                                                                                        MUTAGENESIS OF BH1 AND BH
MEDLINE-96170038; PubMed-
Cheng E.H.-Y., Levine B.,
                                                                                                                                                                                                                                                                                               with
                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. Inohara N., Ohta S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. (ISOFORMS X(L) AND MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Apoptosis regulator Bcl-x.
BCL2L1 OR BCL2L OR BCLX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HUMAN
                            "X-ray and NMR structure
                                        Yoon H.S., Nett
                                                                         MEDLINE=96256675;
                                                                                                          Science
                                                                                                                    Thompson C.B., Fesik S.W.;
"Structure of Bcl-xL-Bak peptide
regulators of apoptosis.";
                                                                                                                                                  Eberstadt M., Yoon H.S.,
                                                                                                                                                                                     STRUCTURE
                                                                                                                                                                                                                                Korsmeyer S.J.;
                                                                                                                                                                                                                                                                                                        "Multiple Bc1-2 family members demonstrate selective
                                                                                                                                                                                                                                                                                                                     Korsmeyer
                                                                                                                                                                                                                                                                                                                                Sedlak T.W.,
                                                                                                                                                                                                                                                                                                                                         MEDLINE=95372373;
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                                                                                    X-RAY CRYSTALLOGRAPHY (2.2
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                     death
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           381:335-341(1996)
                                                                                                          275:983-986(1997).
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                                                               Sattler M.,
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                                                                                                                                                                                                                                                                                     Sci.
                                                                       PubMed=8692274;
                                                                                                                                                                                                                                                     PubMed-8596636;
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                                                               Liang
                                                                                     ANGSTROMS),
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                               human Bcl-xL,
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                                                               Meadows
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                                                    Thompson
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                                                    R.P., Ha
                                inhibitor of programmed
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                                                   Harlan
3., Wong
                                                                                                                                                     Minn A.J.,
                                                                                                                                                                                                                                                                                                                                L.H.,
                                                                                                                                                                Harlan J.E.,
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TIGREAMS; TIGRO0865; bc1-2; 1.

PROSITE; PS50062; BCL2_FAMILY; 1

PROSITE; PS011080; BH1; 1.

PROSITE; PS011258; BH2; 1.

PROSITE; PS01259; BH3; 1.

PROSITE; PS01259; BH4; 1. 1.

PROSITE; PS01260; BH4 1; 1.

PROSITE; PS01260; BH4 2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Ew the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content
DOMAIN
DOMAIN
                                                                                                                                                                                                                       Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         modified and this statement
                                                         Apoptosis; M:
3D-structure
                                                                                                                                                                                                                                                                             InterPro; IPR002475; InterPro; IPR000712;
                                                                                                                                                                                                                                                                                                            MIM; 600039,
                                                                                                                                                                                                                                                                                                                             Genew;
                                                                                                                                                                                                                                                                                                                                         PDB; 1LXL;
PDB; 1MAZ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLEAVAGE BY CASPASES, AND MUTAGENESIS OF ASP-61.
MEDLINE=98118550; PubMed=9435230;
Clem R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G.
Takahashi A., Kastan M.B., Griffin D.E., Earnsha
                                            DOMAIN
                                                                                                                                                                                                                                                   InterPro; IPR003093;
InterPro; IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hardwick J.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Modulation of cell death bx Bcl-xL through caspase interaction.";
Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.

1. TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS
THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING
LYMPHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING
LONG-LIVED POSTMITCTIC CELLS, SUCH AS DUTLE BRAIN.

DOMAIN: The BH4 domain is required for anti-apoptotic activity.
The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.

PTM: Proteolytically cleaved by caspases during apoptosis That activity.

Cleaved protein, lacking the BH4 domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTIVITY.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator.
                                                                                                                                                                                                                                                                                                                                      ; 223116; CAA80662.1;
; 223115; CAA80661.1;
; U72398; AAB17354.1;
; U72398; OCT 97.
1BXL; 29-OCT 97.
1LXL; 21-APR-97.
1MAZ; 21-APR-97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              apoptotic activity.
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             isoform promotes apoptosis. SUBUNIT: Bcl-x(L) forms het
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                                                                                                                                                                                                                                                                                                                                                                       1BXL;
                                                                                                                                                                                          SM00337;
SM00265;
                                                                                                                                                                                                                                                                                                                         HGNC:992; BCL2L1
                                                                      Mitochondrion;
86
129
180
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Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
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                                                                     Alternative splicing;
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BH4
BH3
BH1
BH2
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.E., Earnshaw W.C., Veliuona M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (BH1)
(BH2)
(BH3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (BH4)
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RESULT BELLX, DE DE LAC BELLX 
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Best Local
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077737;
15-JUL-1999 (Rel. 38, C
15-JUL-1999 (Rel. 38, L
15-JUN-2002 (Rel. 41, L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DIG
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CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                   Apoptosis regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
Sus screen value.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MUTAGEN
MUTAGEN
                                                                                                                                                                                                                                                                                                                               Sus scrofa (Pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                 Bartling B., Hoffmann J., Holtz J., "Quantification of cardioprotective
                                                                                                                                                     short-term hibernating myocardium.";
J. Mol. Cell. Cardiol. 31:147-158(1999).
-!- FUNCTION: Potent inhibitor of cell of
                                                                                                                                                                                                                                                  MEDLINE=99171363;
                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUTAGEN
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                                                   FUNCTION: Potent inhibitor of cell death. Inhibits activat caspases (By similarity). Appears to regulate cell death b blocking the volatage-dependent anion channel (VDAC) by b to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane.

SUBJUNT: BCL-X(L) forms heterodimers with BAX, BAK and Bcl
                similarity). Heterodimerization with BAX does not seem required for anti-apoptotic activity (By similarity).
required fo
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22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 146.5; DB 1;
Pred. No. 4.3e-06;
29; Mismatches 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WD->GA: REDUCES ANTI-APOPTOTIC ACTIVITY BY ABOUT HALF.
D->A: NO EFECT ON CASPASE-1 CLEAVAGE.
G->A (IN REF. 1; CAA80661).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTIVITY.
G->A: NO I
G->E: NO I
D->A: NO I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTIVITY.
GRI->ELN: LOSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DTFVELYGNNAAAESRKGQERFNRWFLTGMTVAGVVLLGSL
FSRK -> VRTKPLVCPFSLASGQRSPTALLLYLFLLCWVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLEAVAGE BY CASPASE-1.
MISSING (IN ISOFORM BCL-X(S))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CASPASE-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D->A: NO CLEAVAGE BY CASPASE-1 NOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VNW->AIL: LOSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FRD->VRA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VGDVDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -> A (IN REF. 1;
E09D3CDD851AE9BE
                                                                                                                                                                                                                 gene expression in
                                                                                                                                                                                                                                      Schulz R., Heusch G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (IN ISOFORM BCL-X(BETA))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     233
                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HETERODIMERIZATION WITH BAX.
HETERODIMERIZATION WITH BAX.
EFECT ON CASPASE-1 CLEAVAGE.
EFECT ON CASPASE-1 CLEAVAGE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NO HETERODIMERIZATION WITH LOSS OF ANTI-APOPTOTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APERA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ANTI-APOPTOTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAA80661).
CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                       activation
                                                                                                                                                                                                                   porcine
                                                                                                                                                                                                                                    Darmer
                                   Bcl-2
to be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55;
                                                                                                             by
binding
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                                                                                                                                                                                                                                    D.;
                                                     (By
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RESULT 13
BAXA_HUMAN
                                                                                                                                                                      В
                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00337; BCL; 1
SMART; SM00265; BH4; 1
TIGREAMS; TIGR00865; b
PROSITE; PS50062; BCL2,
PROSITE; PS01080; BH1;
 BAXA_HUMAN
Q07812;
Q1-FEB-1995
Q1-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This
                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  between
                                                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                     174 LNDHLEPWIQENGGW
                                                                                                         158
                                                                                                                              115
                                                                                                                                                  98
                                                                                                                                                                                                                                    23
                                                                                                                                                                       57
                                                                                                                                                                                           57
                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity). The cleaved protein, lacking the apoptotic activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the En European Bioinformatics Institute. There are no restriby non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           with other Bcl2 family members and for repression of cell PTM: Proteolytically cleaved by caspases during apoptosis similarity). The cleaved protein, lacking the BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN: The BH4
The BH1 and BH2
                                                                                                         VRKTLATWLRRRGGW
                                                                                                                                                                     WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                                                                                                                                                                 SNRELVV-----
                                                                                                                                                                                                                                  TDKELVAQAKALGREYVHARLLRAGLSWS------APERA-----
                                                                                                                                                QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF
                                                                                                                             -TPGTAYQSFEQVLNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIATWMATY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pro; IPR004725; Bc12_reg.
PF00452; Bc1-2; 1.
PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AJ001203; CAA04597.1; -. Q07817; 1MAZ.
                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPR002475; BCL2_family.
IPR000712; Bcl2_BH.
IPR003093; BC12_BH4.
                                                                                                                                                                                            -SPAPGGR-----
                                                                                                                                                                                                                                                                                                 210
233 AA;
                                                                                                                                                                                                                                                                                                                                                              Mitochondrion;
  (Rel.
                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                    86
129
180
                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                            ; BCL2_FAMILY; ; BH1; 1.
                                                                                                                                                                                                                                                                                                                                                                      BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY).
 31,
31,
                                                                                                                                                                                                                                                                                                                                                                                            внз;
                                                                                                                                                                                                             -DFLSYKLSQKGYSWSQFTDVEENRTEAPEGTESEAETPSAINGNPS
                                                                                                                                                                                                                                                                                                           24
100
148
195
226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         domains are required
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      domain
                                                                                                                                                                                                                                                                                                 26061 MW;
                                                                                     188
                                                                                                                                                                                                                                                                  13.3%;
22.1%;
                                                                                                         172
   Last
            Created)
                                                                                                                                                                                                                                                                                                                                                              Transmembrane
                                                                                                                                                                                          -----LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
  sequence
                                                                                                                                                                                                                                                        29;
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                                                                                                                                                                                                                                                                                                                    BH1.
BH2.
                                                                                                                                                                                                                                                                  Pred. No.
                                                                                                                                                                                                                                                                            Score 146.5;
                                                                                                                                                                                                                                                                                                           POTENTIAL
                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         required for anti-apoptotic required for both heterodi
                                                                                                                                                                                                                                                                                                 18BF6FA0441912B2 CRC64;
                                                                                                                                                                                                                                                        Mismatches
                                192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                  4.3e-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         There are no rest
                                ΑA
                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                        68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN.
DOMAIN.
                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         poptotic activity.
heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
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                                                                                                                                                                                                                                                                            233;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             death.
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                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                  157
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                                                                                                                                                                                           97
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                                                                                                                                                                                                                                                       Ś
 Pfam; PF00452; Bcl-2;
SMART; SM00337; BCL;
PROSITE; PS50062; BCL
                                                                                                                                                                                This
                                                     MIM;
                                                              Genew; HGNC:959; BAX
                              InterPro; IPR002475; InterPro; IPR000712;
                                                    600040;
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DA FL

BCL2\_FAMILY;

BCL2\_family. Bcl2\_BH.

В δÃ Ъ Q δÃ 망 ο<sub>γ</sub>

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between the Swiss Institute of Bioinformatics and the E
the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blood 91:2991-2997(1998).

-i - FUNCTION: ACCELERATES PROGRAMMED CELL DEATH BY BINDING TO, AND ANTAGONIZING THE APOPTOSIS REPRESSOR BCL-2 OR ITS ADENOVIRUS HOMOLOG E1B 19K PROTEIN. INDUCES THE RELEASE OF CYTOCHROME C, ACTIVATION OF CASPASE-3, AND THEREBY APOPTOSIS.

-i- SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS TOGETHER WITH BCL-2, E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=93364978; PubMed=8358790; Oltvai Z.N., Milliman C.L., Korsmeyer "Bcl-2 heterodimerizes in vivo with a accelerates programmed cell death."; Cell 74:609-619(1993).
                                                                                                               or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
EMBL; L22473; AAA03619,
PIR; A47538; A47538.
HSSP; Q07817; 1MAZ.
                                                                                                                                    entities requires
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARIANT PLASMACYTOWA GLU-11, VAR
LEUKEMIA ARG-67, AND VARIANT BUR
MEDLINE-98200607; PubMed-9531611
Meljerink J.P.P., Mensink E.J.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sloetjes A.W., de Witte T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chittenden T., Flemington C., Houghton Elangovaran B., Chinnadurai G., Lutz R., Telangovarved domain in Bak, distinct f "A conserved domain in Bak, distinct death and protein binding functions.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=96091131; PubMed=8521816; Chittenden T. Planting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ЕМВО J. 14:5589-5596(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE=B-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Apoptosis regulator BAX, membrane isoform alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hematopoietic malignancies demonstrate loss-of-function mutations
                                                                                                                                                                                                                                                                                                                  hematopoietic malignancies as T-cell acute lymphoblastic leukemia, Burkitt lymphoma, and plasmacytoma.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF DOMAIN: INTACT BH3 DOMAIN IS REQUIRED BY BIK, BID, BAX FOR THEIR PRO-APOPTOTIC ACTIVITY AND FOR THEIR WITH ANTI-APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALTERNATIVE PRODUCTS: THE MEMBRANE CYTOPLASMIC ISOFORMS, BETA, GAMMA ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISEASE: Defects in BAX are found in some
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: Membrane-bound
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                    SWISS-PROT entry is copyright. It is produced through
                                                                                                                                    non-profit institutions as long and this statement is not removed. requires a license agreement (See
                                                                                                            email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mensink E.J.B.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .J.B.M., Wang
Waksman G., 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VARIANT T-CELL AC
BURKITT LYMPHOMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Houghton
Lutz R.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBRANE ISOFORM ALPHA
GAMMA AND DELTA ARE (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Α.Β.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Korsmeyer S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BH1
                                                                                                                                  http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACUTE LYMPHOBLASTIC MA VAL-108.
                                                                                                                                                             Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ebb R.G.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cell lines from
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                                                                                                                                                             ьy
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GENERATED BY
                                                                                                                                                                                                                restrictions
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                                                                                                                                            and f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BAK, BAD AND INTERACTION
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                                                                                                                                                                                                                                           EMBL
                                                                                                                                                                                                                                           a collaboration - MBL outstation
                                                                                                                                                               for
                                                                                                                                                             commercial
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
PROSITE;
PROSITE;
                                                                                                                                                     cell-survival genes.";
Gene 158:171-179(1995).
-!- FUNCTION: CONFERS STRC
                                                                                                                                                                                                                                                                                                                                 01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator R11 (XR11)
                                                                                                                                                                                                                                                                                                                                                                                  AR11_XENLA
Q91828;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                           XENLA
                         use
                                                                                                                                                                                                   Cruz-Reyes J., Tata J.R.;
"Cloning, characterization
                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Apoptosis;
Disease mu
             modified
                                                 between
                                                                                                                                                                                                                           MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                          NCBI_TaxID=8355
                                                                                                                                                                                                                                                                                                 Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                        Xenopus laevis (African clawed frog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
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                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                     Kenopodinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        124
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
           European Bioinformatics Institute. The by non-profit institutions as long iffied and this statement is not removed.
                                                                              FUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH.
SUBCELLULAR LOCATION: Membrane-bound (Potential).
DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN
BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AND
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                              SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWDGLL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSAAAGLAVD 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTSSEQIMKTGALLLQGFIQDRAGRMG---GEAPELALDPVPQDASTKKLSECLKRIGDEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mutation.
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PS01259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                192
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98
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172
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                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
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BH2;
BH3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108
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118
165
192
 license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21184 MW;
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                                                                                                                                                                                                   and expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G -> R (IN T-CELL ACUTE LYMPHOBLASTIC LEUKEMIA; LOSS OF HETERODIMERIZATION WITH BCL-2 OR BCL-X(L)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 143.5; DB 1
Pred. No. 6.4e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HOMODIMERIZATION).
/FTId=VAR_013576.
6C0CDB0A7DEE4994 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BH3
BH1
BH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL
                                                                                                                                                                                                                                                                                                             Craniata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /FTId=VAR_013575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FTId=VAR_007809.
                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -> V (IN BURKITT LYMPHOMA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                               204
                      There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                             Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alternative splicing;
                                                                                                                                                                                                                                                                                                                                                                                             AA
                                                                                                                                                                                                      of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                     two
                                                                                                                                                                                                                                                                                                                                                                                                                                                       162
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             Usage
                                                                                                                                                                                                     Xenopus
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
            bу
            and
                                             igh a collaboration - EMBL outstation -
                                                                                                                                                                                                     bcl-2-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13;
            tor
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             commercia.
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                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
BCLX_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 28
                                                                                   "Differential expression of bcl-2 and spermatogenesis.";
Mol. Reprod. Dev. 47:26-29(1997).
                                                                                                                                                                                                                                                                                                                                                                       BCLX_CHICK STANDARD; PRT; 2

Q07816; Q98908;

01-FEB-1995 (Rel. 31, Created)

01-NOV-1997 (Rel. 35, Last sequence up

15-JUN-2002 (Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE;
                                                                                                                               SEQUENCE FROM N.A. (LONG FORM).
STRAIN-Hubbard White Mountain; T:
MEDLINE-97264485; PubMed-9110311.
Vilagrasa X., Mezquita C., Mezqui
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                          -
                                                                                                                                                                                           "bcl-x, a bcl-2-related gene that functions as of apoptotic cell death."; Cell 74:597-608(1993).
                                                                                                                                                                                                                              Boise L.H., Gonzalez-Garcia M., Postema C. Turka L.A., Mao X., Nunez G., Thompson C.
                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (SHORT FORM).
MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                                            Gallus gallus (Chicken)
Eukaryota; Metazoa; Cho
                                                                                                                                                                                                                                                                                                                                                    Apoptosis regulator Bcl-X. BCL2L1 OR BCLX OR BCL-X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMART; SM00337; BCL; SMART; SM00265; BH4; TIGRFAMS; TIGR00865;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                                                                                 Archosauria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE; PS50062; BCL2_FAMILY; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                         NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     114
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       send
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (BY SIMILARITY).

ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING.

TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS WITH LYMPHOID
                                                       FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AFFSFGRALCVESANKEMTDLLPRIVQWMVNYLEHTLQPWMQENGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGITWGKVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EVLQALLEATEEFELRYQRAFSDLTSQLHI----TQDTAQQSFQQVMGELFRDGTNWGRIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PF02180; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X82461; CAA57844.1; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF00452; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      an
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PS01080;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR003093;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204 AA;
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152
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                  Aves;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              вн1;
                                                                                                                                                                                                                                                                                                                ; Chordata; 
Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198
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Bcl2_BH4.
Bcl2_reg.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                       Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 138.5; DB 1;
Pred. No. 1.9e-05;
12; Mismatches 54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL
                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi; Galliformes; Phasianidae; Phasiani
                                                                                                                                                          TISSUE=Testis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3BFC6BE6DDA4CA03 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                         229
                                                                                                                      bcl-x during
                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                         C.E.,
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                                                                                                                                                                                                                    dominant regulator
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                                                                                                                       chicker
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                                                                         THE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       204;
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Search completed: April 29, 2003, 11:23:56 Job time: 8.50783 secs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 12.5%; Score 137.5; DB 1; Best Local Similarity 22.0%; Pred. No. 2.7e-05; Matches 42; Conservative 30; Mismatches 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIGREAMS; TIGR00865; b
PROSITE; PS50062; BC12
PROSITE; PS01080; BH1;
PROSITE; PS01258; BH2;
PROSITE; PS01259; BH3;
PROSITE; PS01260; BH4
PROSITE; PS01260; BH4
                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC FUNCTION: INTACT BH1 AND BH2 DOMAINS ARE REQUIRED FOR ANTI-APOPTOTIC ACTIVITY (BY SIMILARITY).
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               modified and this statement is not removed, entities requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00452; Bc1-2; 1. Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR; A47537; A47537.
HSSP; P53563; 1AF3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; 223110; CAA80657.1; -. EMBL; U26645; AAB07677.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR004725; Bcl2_reg.
                                                                                                               162 LATWLRRRGGW 172
                                                                                                                                                  114 TAYQSFEQVVNELFHDGVNWGRIVAFFSFGGALCVESVDKEMRVLVGRIVSWMTTYLTDH 173
                                                                            174 LDPWIQENGGW
                                                                                                                                                                                     102 VVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKT 161
                                                                                                                                                                                                                        57 AGHVVNGATVHRSSLEVHEIVRASDVRQALRDAGDEFELRYRRAFSDLTSQLHI---TPG 113
                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                 4 SNRELVI-----DFVSYKLSQRGHCWSELEEEDENRTDTAAEAEMDSVLNGSPSWHPP 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEVELOPMENT.

DOMAIN: BH4 DOMAIN SEEMS
FUNCTION. INTACT BH1 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transmembrane; Alternative splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                      229 AA;
                                                                            184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S5; bcl-2; 1.
BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        25733 MW;
                                                                                                                                                                                                                                                 -RLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEP 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BH2.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ERFVDLYGNNAAAELRKGQETFNKWLLTGATVAGVLLLGSL
LSRK -> VRTALP (IN SHORT ISOFORM).
: A97D3A4D04C0E9DA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Usage
                                                                                                                                                                                                                                                                                                                                                                                                               Length 229;
                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and for
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                                                                                                                                                                                                                                                                                                                                                                          Gaps
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Total number of hits satisfying chosen parameters:
                                                  Searched:
                                                                                                          Scoring table:
                                                                                                                                                      Sequence:
                                                                                                                                                                       Title:
Perfect score:
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                                                                                                               BLOSUM62
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1100
                                             283224 seqs, 96134422 residues
                                                                                                                                                                                                                                April 29, 2003, 11:20:36; Search time 13.3473 Seconds (without alignments)
. 1534.145 Million cell updates/sec
                                                                                       Gapop 10.0 , Gapext 0.5
                                                                                                                                                    1 MEVLRRSSVFAAEIMDAFDR.....TLCSFGRFLKAAFFLLLPER 213
                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
        283224
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Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

PIR\_73:\*
1: pir1:\*
2: pir2:\*
3: pir3:\*
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	. 12	11	10	9	8	7	6	رح.	4	ω	2	1		Result
95.5	97.5	105	110.5	120	122.5	123	127.5	127.5	137.5	143.5	145.5	145.5	146.5	148	148.5	149.5	150.5	150.5	150.5	151.5	153.5	155	156	157.5	158.5	159	159.5	164.5		Score
8.7	8.9	9.5		10.9		11.2	11.6	11.6	12.5	13.0	13.2	13.2	13.3	13.5		13.6	13.7	13.7	13.7	13.8	14.0	14.1	14.2	14.3	14.4	14.5	14.5	15.0		Query Match Length
172	1115	154	143	350	211	133	211	192	190	192	205	179	233	233	218	233	233	214	199	232	239	233	216	236	227	236	236	236		
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149449	A70990	T58194	138921	A47476	S58875	153295	S58873	D47538	A47537	A47538	TVHUB1	JC7255	B47537	167431	B47538	S51761	I49056	I49057	TVMSB1	S24390	TVHUA1	A37332	в37332	TVMSA1	JE0203	167432	JC7383	I53744		ID
hemopoietic-specif	carbamoy1-phosphat	gene bcl-2 protein	bcl-2-associated p	BCL2 homolog MCL1	cdn-2 protein - hu	bcl-2-associated p	Bak protein - huma	bcl-2-associated p	apoptosis regulato	bcl-2-associated p	transforming prote	Bax-delta protein	apoptosis regulato	BCL-X-Long - rat	bcl-2-associated p	BCL-X protein - ra	bcl-x long - mouse	Ф					transforming prote	transforming prote	apoptosis regulato		B-cell lymphoma 2	gene bcl-2 protein	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Description

RESULT 2
JC7383 .

JC7383 .

JC7383 .

B-cell lymphoma 2 protein - Chinese hamster
C:species: Cricetulus griseus (Chinese hamster)
C:pote: 17-Nov-2000 #sequence\_revision 17-Nov-2000 #text\_change 08-Dec-2000
C:Accession: JC7383
R.Tomicico M. T: Christmann, M.; Kaina, B.
Biochem. Biophys. Res. Commun. 275, 899-903, 2000
A:Title: Cloning and functional analysis of cDNA encoding the hamster Bc1-2 protein.
A:Reference number: JC7383

A;Contents: Ovary A;Accession: JC7383

## ALIGNMENTS

Db 177 YLNRHLHTWIQDNGGWDAFVELYGPSMRPLEDFSWLSLKTLLS	Qy 157 FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS 197	121	Qy 97 LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156	Db 61 VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120	QY 62GRLAEVCTVLLRLGDELEQIRPSVYRNVARQLH	Db 1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA 60	Qy 28 VAQAKALGREYVHARLLRAGLSWSAPERASPAPG	Query Match 15.0%; Score 164.5; DB 2; Length 236; Best Local Similarity 23.3%; Pred. No. 1.4e-07; Matches 52; Conservative 35; Mismatches 79; Indels 57;	A;Gene: bc1-2 C;Superfamily: bc1 transforming protein	A; Molecule type: mRNA A; Residues: 1-236 <res> A; Cross references: GB:L14680; NID:g408946; PIDN:AAA53662.1; PID:g408947</res>	A;Status: preliminary; translated from GB/EMBL/DDBJ	A; Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein A; Reference number: I53744; MUID:94193015; PMID:8144041	R;Sato, T.; Irie, S.; Krajewski, S.; Reed, J.C. Gene 140, 291–292, 1994	<pre>C:Species: Rattus norvegicus (Norway rat) C:Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-1999 C:Accession: I53744</pre>	RESULT 1 I53744 gene bcl-2 protein – rat
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(apoptosis regulator bcl-x isoform
N; Alternate names: h-bcl-xbeta
                                  RESULT 4
JE0203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L. Endocrinology 136, 232-241, 1995
A;Title: Expression of members of the bcl-2 gene family in onstitutive bcl-2 and bcl-xlong messenger ribonucleic acid A;Reference number: I53295; MUID:95129487; PMID:7828536
A;Accession: I67432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Gene: bcl-2
C;Superfamily: bcl
C;Keywords: B-cell
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A; Residues: 1-236 <TOM>
A; Cross-references: GB: AJ271720
C; Comment: This protein has ant
C; Genetics:
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C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
C;Accession: 167432
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: EMBL:U34964; NID:g1004378; PIDN:AAA77687.1; PID:g1004379 C;Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: mRNA
A; Residues: 1-236 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Status: preliminary; translated from
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Best Local Similarity
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FTAR----GREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                        YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWQSLKTLLSLALVGACITLGAYL
                                                                                                                                              FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHW
                                                                                                                                                                                                                                                          VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                    VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YLNRHLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                 FTAR----GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMYPLVDNIALWMTE 176
                                                                                                                                                                                                                      LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                                                                                                                                MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRRAPTPGIFSFQPESNRTPA 60
                                                                                                                                                                                                                                                                                             -----GRLAEVCTVLLRLGDELEQIRPSVYRNVAR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE
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                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
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lymphoma; ovary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                          14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 anti-apoptotic function, and supports cell survival.
                                                                                                                                                                                                                                                                                                                                                                                                         37;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 159.5;
Pred. No. 4e
                                                                                                                                                                                                                                                                                                                                                                                                         Score 159; DB 2;
Pred. No. 4.4e-07;
7; Mismatches 83
                 human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GB/EMBL/DDBJ
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                                                                                                                                                                                                                                                                                                                                                                                                           83;
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                                                                                                                                              -LVATLCSFGRFL
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Вb
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                                                                                                                                                                   A:Introns: 192/3
C:Superfamily: bcl transforming protein
C:Keywords: alternative splicing; mitoc
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A;Title: Isolation and characterization of the chicken bcl-2 gene: expre A;Reference number: A37332; MUID:92375724; PMID:1508712
A;Accession: E37332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         transforming protein bcl-2-alpha - mouse
C;Species: Mus musculus (house mouse)
C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
C;Accession: A25960; E37332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
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A;Title: Nolecular analysis of mbcl-2: structure and expression of A;Reference number: A90893; MUID:87187643; PMID:3032455
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C; Superfamily: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R;Ban, J.; Eckhart, L.; Weninger, W.; Mildner, M.; Tschachler, E. Biochem. Biophys. Res. Commun. 248, 147-152, 1998
A;Title: Identification of a human cDNA encoding a novel bcl-x isoform A;Reference number: JE0203; MUID:98340865; PMID:9675101
A;Accession: JE0203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Homo sapiens (man)
C;Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999
C;Accession: JE0203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-236 < NEG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Reference number: A; Accession: A25960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TVMSA
                                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 1-33,'E',34-220,'AL',223-236 <EGU>
                                                                                                                                                                                                                                                                                                                     A;Status: preliminary; nucleic acid sequence not
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:U72398; NID:g1622940; PIDN:AAB17354.1; PID:g1622941
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A; Residues: 1-227 <BAN>
                                                                                                                                                                                                                                       A;Gene: BCL2
                                                                                     Matches
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                                          28 VAQAKALG-----
                                                                                                         Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 SNRELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEGTESEMETPSAINGNPS
MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LNDHLEPWIQENGGWVRTKPLVCPFSLASGQRS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATY 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157
                                                                                     Similarity 50; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bcl transforming protein
                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14.4%;
23.5%;
                                          ·REYVHARLLRAGLSW~----SAPERASPAPG----
                                                                                                     14.3%;
22.4%;
                                                                                     37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29; Mismatches
                                                                                Score 157.5;
Pred. No. 6e-0
37; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 158.5;
Pred. No. 4.7
                                                                                                                                                                        mitochondrion; transforming
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4.7e-07;
77;
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                                                                                                         6e-07;
                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                          shown;
                                                                                     79;
                                                                                                                             Length
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                                                                                                                                                                 protein;
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transforming protein (bcl-2-alpha) - chicken (;Speciles: Gallus gallus (chicken) C;Date: 03-Mar-1993 #seguence_revision 03-Mar-1993 #text_change C;Accession: A37332; S35453 R;Eguchi, Y; Ewert, D.L.; Tsujimoto, Y.
                                                                                                                                                                                                             R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 192
A;Title: Isolation and characterization of
A;Reference number: A37332; MUID:92375724;
A;Accession: A37332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
A; Residues: 1-216 <EGU>
A; Cross-references: EMBL.D11381;
C; Superfamily: bcl transforming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transforming protein (bcl-2-beta) - chicken
C:Species: Gallus gallus (chicken)
C:Date: 03-Mar_1993 #sequence_revision 03-Mar-1993 #text_change 24-Apr-1998
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                                                         A; Introns: 189/3
C; Superfamily: b
C; Keywords: mito
                                                                                                                A;Cross-references: EMBL:D11381
C;Genetics:
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A;Title: Isolation and characterization of the chicken bcl-2 A;Reference number: A37332; MUID:92375724; PMID:1508712
A;Accession: B37332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Accession: B37332; S35452
R; Eguchi, Y.; Ewert, D.L.; Tsujimoto,
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                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-233 <EGU>
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                                                                                                                                                                                             A;Status: nucleic acid sequence
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                                                ;Superfamily: DC1 Transic, Keywords: mitochondrion;
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWVRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDV 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPEPPGSAAASEVPP 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFTAH----GRFVAVVEELE 132
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42; Conserv
                                                    bcl transforming protein
tochondrion; transforming
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14.1%;
20.6%;
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Pred. No. 7.5e-07;
Score
Pred.
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No. :
                                                         protein;
                                                                                                                                                                                                                                    the chicken bcl-2
PMID:1508712
  1e-06;
                                                         transmembrane protein
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A;Status: """"
A;Molecule type: DNA
A;Residues: 1-239 <EGU>
A;Rosidues: this report is a correction
A;Note: this report is a correction
R;Tsujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A;Title: Analysis of the structure, transcripts, and protein
A;Title: Analysis of the structure, transcripts, and protein
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C; Date: 31-Dec-1988 #sequence_revision 07-Jun-1996 #text_change 15-C; Accession: C37332; A29409; S02452; A24428; A27622; B27622
R; Eguchi, Y; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A; Title: Isolation and characterization of the chicken bc1-2 gene: A; Reference number: A37332; MUID:92375724; PMID:1508712
A; Accession: C37332
A. Accession: C37332
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A;Molecule type: mRNA
A;Residues: 1-58,'T',60-116,'R',118-239 <CLE>
A;Residues: 1-58,'T',60-116,'R',118-239 <CLE>
A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1;
A;Cross-references: GB:M14745; NID:g17945; NID:g17945; NID:g17945; NID:g17945; NID:g17945; NID:g17945; NID:g17945; NID:g17945
A; Molecule type: DNA
A; Residues: 1-6,'S',8-58,'T',60-128,'C',130-239 <HUA2>
A; Note: the sequence was determined from the germline of the sequence was determined from the germline of the sequence was determined from the germline of the sequence was determined from the sequence of the
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A;Title: Cloning and structural analysis of cDNAs for bcl-2
A:Reference number: A24428; MUID:87002488; PMID:2875799
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Hua, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.; Wright, J.J.; Bakhshi, oncogene Res. 2, 263-275, 1988
A;Title: Consequences of the t(14;18) chromosomal translocation in follicular lymphometry.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Title: Alternative promoters and exons, s A; Reference number: S02452; MUID:88196071; A; Accession: S02452
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A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Cross-references: GB:M13994; NID:9179366; PIN:AAA51813
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A; Residues: 1-58, 'T', 60-239 <HUA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: A27622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: A27622; MUID: 88217344; PMID: 3285301
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C; Genetics

A;Cross-references:

GDB:119031;

GDB: BCL2

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transforming protein bcl-2-beta - mouse (:Species: Mus musculus (house mouse) C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999 C;Accession: B25960 R;Negrini, M.; Silini, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M.
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S24390
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C:Species: Gallus gallus (chicken)
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A; Residues: 1-232 < CAZ>
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                                                                                                                                                        LYGNSMRPLFDFSWISLKTILSLVLVGACITLGAYL 229
                                                                                                                                                                                                                                                                                         LRGCAAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHL---TPFTATGRFVAVVEELFRD
                                                                                                                                                                                                                                                      GITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK
                                                                                                                                                                                                                                                                                                                                                          KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPSPPARLLLVRCPR
                                                                                                                                                                                                                        GVNWVRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWDAFVE
                                                                                                                                                                                                                                                                                                                                                                                           EYVHARLLRAGLSWSA-----PERASPAPGGRLAEVCT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EYVHARLLRAGLSW-----SAPERASPAPG-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GRFAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                        -VLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                           13.8%; Score 151.5; 20.4%; Pred. No. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14.0%;
21.9%;
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                                                                                                                                                                                                                                                                                                                                                                                                                              36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37;
C.;
                                                                                                                                                                                      -LVATLCSFGRFL 202
                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 2.166; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 153.5;
Pred. No. 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    197
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Υ.;
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                                                                                                                                                                                                                                                                                                            A;Gene: bcl-x-1
C;Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bcl-x transmembrane deleted - mouse
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change=16-Jul-1999
C;Accession: I49057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Gene: BCL2
C;Superfamily: bcl trans
C;Keywords: alternative
                                                                                                                                                                                                                                                                                                                                                                                A;Status: preliminary; translated A;Molecule type: mRNA A;Residues: 1-214 <RES>
                                                                                                                                                                                                                                                                                                                                                    C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                 A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                               A; Reference number: A; Accession: I49057
                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Title: Cloning and molecular characterization of mouse A; Reference number: I49055; MUID:95052604; PMID:7963517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R; Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W. J. Immunol. 153, 4388-4398, 1994
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A; Residues: 1-199 < NEG>
A; Cross-references: GB: M16506; NID: 9468335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cell 49, 455-463, 1987
A;Title: Molecular analysis
A;Reference number: A90893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Accession: B25960
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Best Local
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 174
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                               VRKTLATWLRRRGGW 172
                                                                                                                                                                                        SNRELVV-----DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGNPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YLNRHLHTWIQDNGGW--VGACLV
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                                                            -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY 173
                                                                                          QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157
                                                                                                                           WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
                                                                                                                                                       ----SPAPGGR------LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
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                                                                                                                                                                                                                                                                                                                                                               EMBL:U10102; NID:g506649; PIDN:AAA82174.1;
                                                                                                                                                                                                                                                                   13.7%;
22.1%;
188
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                                                                                                                                                                                                                                                      29;
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                                                                                                                                                                                                                                                                   Score 150.5;
Pred. No. 2.
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4; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      198
                                                                                                                                                                                                                                                      Mismatches
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RESULT 12
149056
bc1-x long - mouse
C:Species: Mus musculus (house mouse)
C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
C:Accession: 149056; S52866
R:Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.
J. Immunol: 153, 4388-4398, 1994
A:Title: Cloning and molecular characterization of mouse bc1-x in B and T lymphc
A; Reference number: 149055; MUID:95052604; PMID:7963517
A; Accession: 149056
A; Status: preliminary; translated from GB/EMBL/DDBJ
A; Molecule type: mRNA
A; Residues: 1-33 (RES>
A; Cross-references: EMBL:U10101; NID:9506647; PIDN:AAA82173.1; PID:9506648
R; Kamesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.
submitted to the EMBL Data Library, November 1994
A; Description: IL-5 inhibits anti-IgM-induced apoptosis in an immature B cell li
A; Reference number: $52866
A; Experimental source: embryonic; brain
A; Accession: S51762
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-125,189-233 <MI2>
A; Cross-references: EMBL: X82537; NID: g607176; PIDN: CAA57887.1;
A; Experimental source: embryonic; brain
A; Note: smaller form due to splicing
C; Genetics: 125/3
A; Introns: 125/3
C; Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                submitted to the EMBL Data Library, November 1
A:Reference number: S51761
A:Accession: S51761
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-233 <MIC>
A:Cross-references: EMBL:X82537; NID:g607176;
                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 13
$51761
BCL-X protein - rat
C:Species: Rattus norvegicus (Norway rat)
C;Date: 07-Way-1995 #sequence_revision 01-Sep-1995
C:Accession: S51761; S51762
R:Michaelidis, T.M.
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A; Residues: 1-233 <KAM>
A; Cross-references: EMBJ
C; Superfamily: bcl trans
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A; Status: preliminary
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEF 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SNRELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEAERETPSAINGNPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WHLADSPAVNGATGHSSSLDAREVIPMAAVKQALREAGDEFELRYRRAFSDLTSQLHI--
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22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----LAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPL 97
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Pred. No. 2.0
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                                                                                                                                                                                                                                                        PIDN:CAA57886.1;
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RESULT 15
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Species: Homo sapiens (man)
C;Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 17-Nov-2000
C;Accession: B47538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
B47538
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A; Residues: 1-218 <OLT>
A; Cross-references: GB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Title: Bcl-2 heterodimerizes in vivo with a conserved A; Reference number: A47538; MUID:93364978; PMID:8358790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bcl-2-associated protein x, beta splice form - human
N;Alternate names: BAX; programmed cell death membrane
C;Species: Homo sapiens (man)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Accession: B47538
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Oltvai, Z.N.; Milliman, C.L.; Korsmeyer, S.J.
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Best Local
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                                                                                                                                                                                                       13 PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
                                                                                                                                                                                                                                                                                             Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                    -references: GB:L22474; NID:g388167; PIDN:AAA03620.1; the amino end of the mature protein is blocked
                                                                                                  CVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK 177
                                                                                                                                      DS-----
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                                                                                                                                                                      EQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAG-ITWGKVVSLYSAAAGLAVD 137
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                                                                    ALCTKVPELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -TPGTAYQSFEQVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATY
                                                                                                                                                                                                                                                                                46;
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22.1%;
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                                                                                                                                                                                                                                                                                                                                             blocked amino end; cytosol; heterodimer; homodimer
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Pred. No. 3.
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R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L. Endocrinology 136, 232-241, 1995
A;Title: Expression of members of the bcl-2 gene family in onstitutive bcl-2 and bcl-xlong messenger ribonucleic acid A;Reference number: 153295; MUID:95129487; PMID:7828536

the immature levels.

rat

ovary:

eg

C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Jul-1996 #sequence\_revision 26-Jul-1996 #text\_change
C;Accession: 167431

.16-Jul-1999

BCL-X-Long - rat C; Species: Rattu

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A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-233 <RES>
A;Cross-references: EMBL:U34963; NID:g1004376; PIDN:AAA77686.1; PID:g1004377
C;Superfamily: bcl transforming protein
Search completed: April 29, 2003, 11:26:36 Job time: 14.3473 secs
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                                                                                    174 LNDHLEPWIQENGGWDTFVDLYGNNTAPESRKGQERFNRWFLTGMTVAGVVLLGSLF 230
                                                                                                                           158 VRKTLATWLRRRGGW-TDVLKCVVSTKPGFR----SHWLVATLCSFGRFLKAAFF 207
                                                                                                                                                                115 -TPGTVYQSFEQVVNELFRDGVNWGRIVASSSFGGALCVESVDKEMQVLVSRIASWMATY 173
                                                                                                                                                                                                                                                4 SNRELVV------DFLSYKLSQKGYSWSQFSDVEENRTEAPEETEPERETPSAINGNPS 56
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Listing first 45 summaries
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AAB48288

Breast and ovarian Human Bcl-2-like p Drosophila melanog Drosophila melanog

Human BCL-2 protei

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						<pre>arlant; endometriosis; oliferation disease; r carcinoma; cervix; ; cancer; therapy;</pre>				-		tosis-blockin  tosis-blockin  n Bcl-2 mutan  ne Bcl-2. Mu  ne Bcl-2. Mu  ne Bcl-2 prote  pcl-2 prote  n Bcl-2 prote  Bcl-X gamma  o acid sequen  Bcl-X apopto  nce of bcl-2-  concegene pr  bcl-2 prote  n bcl-2 lipha  tosis-blockin  n Bcl-2 wild-  n Bcl-2 prote   Human Bcl-2 protei	

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular
                                                                                                                                                                                                         reproductive tissue; uterine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok
                07-NOV-1997;
                                               04-NOV-1998;
                                                                                                                                                                                             ovarian carcinoma;
                                                                                                                                                                                                                        Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosi pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;
                                                                                                                                                                                                                                                                            Rat
                                                                                                                                                                                                                                                                                                                                                                         AAY14153 standard;
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                                                                             20-MAY-1999
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                                                                                                                                              Rattus rattus
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                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                              disorder;
                97US-0064943
                                               98WO-US23523
                                                                                                                                                                                            glandular
                                                                                                                                                                                                                                                                                                                                                                         Protein;
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                                                                                                                                                                                                           cervix;
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Matches
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                                                                                                                                        protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                                                                                    This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH3i variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok
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                                                                                   Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and its related gene
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                         Similarity
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                                                                                     213 AA;
      Conservative
                       97.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  English.
Score 1076; DB 40,
Pred. No. 1.5e-109;
      0
      Indels
                                          Length
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GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120 Gaps 0

δÃ Вþ οy 181 121 121 WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV WGKVVSLYSVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV

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RESULT 3 AAB41444 AAB41444 standard; Protein; 213

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181

213

vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antiviral; antibacterial; antifungal; antirheumatic; antithyroid; antianaemic; gene therapy; cancer; proliferative disorder; hyperte neurodegenerative disorder; osteoarthritis; graft vs host disease; Human; open reading Human ORFX ORF1208 polypeptide sequence frame; ORFX; detection; cytostatic; diabetes SEQ hypothyroidism; ID NO:2416 hepatotropic; hypertension; cardiant;

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                                                                                                                                                                                                                                                                                                                                                                                       contipositatic; antiparkinsonian; notropic; neuroprotective; costeopathic; anticonvulsant; antiarthritic; immunosuppressant; immunostimulant; cardiant; thrombolytic; coagulant; vasotropic; coagulant; vasotropic; coantidiabetic; hypotensive; dermatological; immunosuppressive; cantidiabetic; hypotensive; dermatological; immunosuppressive; cantidiabetic; hypotensive; dermatological; immunosuppressive; cantidiabetic; hypotensive; dermatological; immunosuppressive; cantidiamatory; antibacterial; antiviral; antifungal; antirheumatic; cantidiamatory; antianaemic. The sequences can be used for determining continuous continuous associated with an ORFX-associated disorder. The coleic acids can be used to express ORFX proteins in gene therapy cectors. The proteins and nucleic acids may be used to treat cancers, coroliferative disorders, neurodegenerative disorders, osteoarthritis, coroliferative disorders, neurodegenerative disorders, osteoarthritis, corretension, hypothyroidism, cholesterol ester storage, systemic lupus crythematosus, severe combined immunodeficiency (SCID), AIDS, viral, corolies, aplastic anaemia, burns, wounds, bone and cartilage damage, coccurral haemoglobinuria, antiinflammatory disease; to enhance constructive.
                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAR-1999;
02-APR-1999;
05-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary;
                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   useful for treating e.g. cancers, proliferative disordeneurodegenerative disorders and cardiovascular disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound;
bone damage; cartilage damage; antiinflammatory disease; coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAR-2000; 2000WO-US08621
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  181
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                                                                                                                                                                                                                  1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP 60
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STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                        WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180
                                 WGKVVSLYAVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                GGRLAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                  MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nucleic acids and peptides derived from open reading
                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Page 1750-1751; 5507pp; English.
                                                                                                                                                                                                                                                                                                                                                              213
                                                                                                                                                                                                                                                                               Conservative
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99US-0127636.
99US-0127728.
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                                                                                                                                                                                                                                                                                               95.9%;
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213
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3.1e-107;
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GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT

Matches

170;

Conservative

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Gaps 60 60

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RESULT 4
AAX14156
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AD AAX14
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AC AAX1
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AX AAX1
                                                                                                                                                                                                                      CC protein, of the invention. Coding sequences for Box or BH31 variants of comprehent, of the invention. Coding sequences for Box or BH31 variants of comprehent, of the invention. Coding sequences for Box or BH31 variants of comprehent, or the invention of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there can observe the cell population of reproductive tissue, e.g. uterine, testicular cancinomas of the cervix. Cell killing induced by Box can be suppressed by co-expression with selective anti-apoptotic Bc1-2 proteins. The Box context tissues, and provide a means for manipulating apoptosis. The Box context tissues, and provide a means for manipulating apoptosis. The Box context tissues, and provide a means for manipulating apoptosis. The Box context and transgenic animal are also useful for identifying ligands or constitutes. Modulation of the gene activity in vivo is useful for complylaxis and therapy of, e.g. cancer and other proliferative context based on expression. Identification of Box as new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
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                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This sequence is a mammalian Bok (Bcl-2-related ovarian killer)
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                                                                                                                                                                                                     facilitates elucidation of apoptosis mechanisms
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                                             Similarity
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                                      77.5%;
79.8%;
      Score 852.5;
Pred. No. 3.4e
0; Mismatches
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3.4e-85;
0;
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RESULT 5
AAY14154
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   Matches
                  Query Match
Best Local :
                                                                                                        protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                                                                                                                                                                           protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bot 2 proteins. The Bok protein and be suppressed by co-expression with selective anti-apoptotic Bot 2 proteins. The Bok
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalian Bok (Bcl-2-related protein and its related gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ovarian carcinoma;
                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                   This sequence is a mammalian Bok (Bcl-2-related ovarian killer)
                                                                                                                                                                                                                                                                                                                                                                                                                      Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-NOV-1997;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9924453-A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bok protein; Bcl-2-related ovarian killer; BH31 variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rat Bok protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY14154 standard;
                                                                                                  facilitates elucidation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (STRD ) UNIV LELAND
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   166;
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                                                                                                                                                                                                                                                                                                                                                                                                                    2;
                 Similarity
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                                                                 170
   Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                 54-55; 62pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANFORD JUNIOR
                 74.78;
                                                                                                  of apoptosis mechanisms.
 0;
Score 821.5; DB 2
Pred. No. 8.5e-82;
0; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ovarian killer), a pro-apoptotic
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43;
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Gaps
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RESULT 6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                 Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAB58711 - AAB59128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention ar sequences AAF22032 - AAF22040 and AAB59129 which are used in the isolation and characterisation of the DNA and protein sequences of the invention. The breast and ovarian cancer associated DNA, protein, agoni or antagonist sequences exhibit cytostatic; immunosuppressive; noottopic; neuroprotective; antivital; antiallergic; hepatotropic;
antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antifungal; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, particularly breast and ovarian cancer. The nucleic acid sequences,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nootropic; neurpprotective; antiviral; antiallergic; hepatotropic; antidabetic; antiinflammatory; antiuleer; vulnerary; anticonvulsant antibacterial; antifungal; antiparasitic; cardiant; immune disorder; Addison's disease; allergy; autoimmune haemolytic anaemia; autoimmune thyroiditis; diabetes mellitus; Crohn's disease; multiple sclerosis; rheumatoid arthritis; ulcerative colitis; cardiovascular disorder; wound healing; neurological disease.
                                                                                                                                                                                                                                       Claim 11;
                                                                                                                                                                                                                                                                     New human breast and ovarian cancer associated gene sequences and the polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascular disorders and neurological diseases
                                                                                                                                                                                                                                                                                                                                                                 WPI; 2000-611515/58
N-PSDB; AAF21852.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; breast cancer; ovarian cancer; cytostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-MAR-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEVLRRSSVFAAEIMDAFDRWFTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard;
                                                                                                                                                                                                                                     Page 1103; 1299pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ovarian cancer associated antigen protein sequence SEQ
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                                                                                                                                                              the invention are
                                                                                                          protein, agonist
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RESULT 7
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Best Local
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The invention provides nucleic acid molecules (NAM1) encoding 4 human Bcl-2-like polypeptides (PEP1). The NAM1 and PEP1 may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate Bcl-2-like polypeptides' expression. The NAM1 may be used to produce the soluble Bcl-2-like polypeptides by standard recombinant methodolgy. The polypeptides may also be used as antigens in the production of antibodies against Bcl-2 and in assays to identify modulators of Bcl-2 expression and activity. The anti-Bcl-2 antibodies and antagonists may be used to down regulate expression and activity.
                                                                                                                                                                                                                                                                            Claim 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bcl-2-like.polypeptide; autoimmune disorder; allergy; immunomodulatory;
respiratory; cardiovascular; antiarthritic; immunostimulant; vaccine;
                                                                                                                                                                                                                                                                                                                              preventing,
                                                                                                                                                                                                                                                                                                                                                             Nucleic acids
                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AAH47021.
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07-FEB-2000; 2000US-0180697
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               proteins, agonists and agonists may also be used in the diagnosis, prevention and treatment of immune disorders e.g. Addison's disease, allergies, autoimmune haemolytic anaemia, autoimmune thyroiditis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (HUMA-) HUMAN GENOME SCI INC
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1. No. 3.2e-70;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        detecting the presence of BCl-2 polyPs in samples (e.g. by enzyme linked immunosorbant assay (ELISA)). Disorders that may be prevented, diagnosed and/or treated by the above methods include, immunodeficiencies (e.g. \alpha).
                                                                                                                                                                                  Disclosure; SEQ ID NO 19995;
                                                                                                                                                                                                                                                   New isolated nucleic acid genes from Drosophila and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23-MAR-2000;
11-JUL-2000;
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                                                                                                                                                                                                                                                                                                                          N-PSDB;
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capable of detecting 1000 or more genes from Drosophila. The inventuation of the capable of detecting 1000 or more genes from Drosophila. The inventuation is developmental biology and in elucidating cell signalling cell—cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins

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                                               capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL01876-ABL30511), expressed DNA sequences (ABL01870-ABB72072).
          specification, but was obtained in electronic
at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                         WPI; 2001-656860/75
N-PSDB; ABL07863.
                                                                                                                                                                                                                                                                                                                                23-MAR-2000;
11-JUL-2000;
                                   The sequence data for this patent did not form part of the
                                                                                                                                       The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                               Disclosure; SEQ ID NO 18072;
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interactions -
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Matches
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Matches
                         Query Match
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                                                   Sequence
                                                                                    cullin/ CDC53 family of proteins). The method is useful for altering the level of p27, cyclin E, Max, Mad, c-Myc, MDM2, p53, Bax, Bad or Bcl-2 polypeptide in a cell. SKP2 and SKP2-like protein levels are useful for detecting tumours, and in monitoring tumor treatment in a mammal. Agents that modulate interactions between SKP and target proteins are useful for
                                                                                                                                                 The invention relates to methods of altering the polyncell, using proteins selected from S-phase kinase associated, (SKP1, SKP2), SKP2-like proteins (ZF) and CUI-
                                                                                                                                                                                                                              proteins
                                                                                                                                                                                                                                                                                                                                                                        04-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bad;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S-phase kinase associated CUL-1; cullin; CDC53; p27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human BCL-2 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB48288 standard; protein;
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                                                                                                                                                                                                                                                                                  N-PSDB;
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                                                                                                                                                                                                                                                                                                                      Zhang
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  131 AAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGW
              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KELVAQAKALGREYVHARLLRAGL--SWSAPERASPAPG----GRLAEVCTVLLRLGDEL 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bcl-2; tumour; cytostatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QDIISQGRCLCGHYIKRRLRRSGLFNKKLGLQRIRSILGSTSMGIVRDVFPAVQVLGDEL 146
                                                                                                                                                                                                                                                                                                                      Ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ERMHPRIYNGVARQICRNPGGEFHTP----DAVSLLLGAVGRELFRVEITWSKVISLFAI 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EQIRPSVYRNVARQL------HIPLQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSA 130
 1 Similarity
47; Conser
                                                                                                                                                                                                                                                                                  AAC84600.
                                                                                                                                                                                                                                altering 1, 2 and
                                                                            tumours.
                                                                                                                                                                                                      Page 104-108;
                                                                                                                                                                                                                                                                                                                      Tsvetkov
                                                                                                                                                                                                                             polypeptide levels in a cell ltering levels of proteins su, 2 and cullin/CDC53 proteins
                                                   239 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 247
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                                                                                                                                                                                                                                                                                                                      Kondo
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); .cyclin E
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 230; DB 22;
Pred. No. 8.2e-17;
           Score 159.5;
Pred. No. 4.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E; Max;
                                                                                                                                                                                                                                           cell, diagnosing and treating tumor, ns such as S-phase kinase associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SKP1; SKP2; E; Max; Mad;
             4.1e-09
                          DB 22;
                                                                                      target proteins are useful for
                                                                                                                                                     the polypeptide levels in inase associated proteins and CUL-1 (a member of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SKP2-like protein; ZF;
c-Myc; MDM2; p53; Bax;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     172
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37 EYVHARLLRAGLSW---

-SAPERASPAPG-

Conservative

Mismatches

73;

Indels

53;

Gaps

7;

---GRLAEVCT--

69

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Best Local (
                                                                                                                                                                                                                                                                                                                                                          in the concentration of the index substance during the incubation is detected to judge the presence of appptosis inhibition or apoptosis promotion. The apoptosis inhibitor or the apoptosis promoter can be used as a drug and a diagnostic agent for various diseases caused by apoptosis inhibition or apoptosis promotion. The present sequence represents the human Bcl-2 protein, which is an apoptosis inhibitor used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention describes a method for screening for an apoptosis inhibitor or an apoptosis promoter in which VDAC-liposome, an index substance which can pass VDAC and a sample are incubated and the change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Screening of an apoptosis inhibitor or promoter which can be used drug and a diagnostic agent for various diseases caused by apoptos
                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 11; Page 13-14; 22pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-APR-1999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17-OCT-2000
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                                                                                                                                      EYVHARLLRAGLSW----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bcl-2; Bcl-xL; Bax; VDAC; apoptosis inhibitor; detection;
                                                                                                                                                                                             Similarity 47; Conser
                                                                                                                                                                                                                                                                                                            239 AA;
                                                                                                                                                                                             Conservative
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VLLRIGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLA 109
                                                                                                                                      -SAPERASPAPG ----
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                                                                                                                                                                                    Score 159.5; DB 22;
Pred. No. 4.1e-09;
- wismatches 73;
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                                                                                                                                                                                                                                                 22;
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                                                                                                                                                                                             Indels
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                                                                                                                                                                                                                                                       239;
                                                                                                                                                                                             53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           apoptosis
                                                                                                                                                                                             Gaps
                                                                                    76
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RESULT 12
AAW01020
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                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The 80-6 mutant (AAW01020) of the bcl-2 oncogene product (AAW01018) lacks amino acids 80-86 of the native protein. This and other Bcl-2 mutants (see also AAW01019-21) were used in a two hybrid assay to examine the interactions between Bcl-2 and novel apoptosis-regulating proteins Nipl, Nip2 and Nip3 (AAW00997-99), 2 Motifs (AAW01003-04) on Bcl-2 were identified that are essential for interaction with the Nip proteins. These motifs show homology to motifs (AAW01005-06) identified on the adenovirus E1B 19K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apoptosis-regulating protein; Bcl-2; oncogene; adenovirus E1B 19K protein; cell death; cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     interaction with the Nip proteins. These motifs show to motifs (AAW01005-06) identified on the adenovirus apoptosis-blocking protein (AAW01010).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic acids encoding apoptosis regulating proteins - useful diagnosing and treating immune disorders, malignancies, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chinnadurai G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EP733706-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nip2; Nip3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-DEC-1996
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW01020
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 8; Page 34-35; 60pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-MAR-1995;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Apoptosis-blocking protein Bcl-2 mutant 80-6 (del80-86).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (UYSL-) UNIV ST LOUIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     immune disorder; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
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                                      117
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                                                                                                                                                                                                                                                                                 37 EYVHARLLRAGLSW-----SAPERASPAPG-----
APGSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR----GCFATVVEELFR 132
                                                                                                                                                                                                                 KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGFFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1996-427055/43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGWDAFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDN 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSRQLHLTPFTAR----GRFAT
                                                                                                                                                                                                                                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   232
                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                        -----VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95US-0408095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96EP-0104542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                   14.48; 22.78;
                                                                                                                                                                                                                                                                                                                                          37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     therapy; Bip1A; Bip13; Bip5; NIp1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cell death; cancer; tumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  232
                                                                                                                                                                                                                                                                                                                                       Score 158; DB 17;
pred. No. 5.8e-09;
7; Mismatches 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₿
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              197
                                                                                                                                                                                                                                                                                                                                                                                                   Length 232;
                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                 ----GRLAEVCT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17
                                                                                                                                                                                                                                                                                                                                          46;
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                                                                                                                                                                                                                                                                                                                                   Gaps
                                      176
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AAW94347
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                   The present invention describes: (1) a method for regulating cell death, comprising exposing an isolated cell to a polypeptide selected from Nip1, Nip2, Nip3, Bip1A, Bip5 and Bip13; (2) a method for neutralising the activity of the adenovirus E1B 19 kD protein, the Bcl.-2 protein or the BHRF-1 protein, comprising exposing an isolated cell to a polypeptide as in (1); and (3) a method for detecting molecules that bind to at least one polypeptide as in (1), comprising lysing cells, capposing the lysate to the polypeptide and detecting any molecule-polypeptide aggregates. The methods are useful for providing proteins polypeptide aggregates. The methods are useful for providing proteins able to bind to other proteins known to regulate cell survival e.g. it is known that E1B 19K protein provides a survival function similar to the cellular protonocogene bcl-2 gene product which is able to block apoptosis in haematopoietic B and T cells. The present sequence
                                                                                                                                               Query Match
Best Local
                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Polypeptides that bind to anti-apoptotic proteins - useful for protecting against cell death induced by viral infection and modulate response to physical and chemical stimuli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; Nip1; Nip
viral infection;
                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 8; Column 43-46; 41pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-152099/13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human Bcl-2 mutant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02-AUG-1994;
21-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ElB 19K protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW94347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAW94347 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (UYSL-) UNIV ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
      77
                                     70
                                                                17
                                                                                                37
                                                                                                                               Local Similarity
les 46; Conserv
                                                              KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGFFSSQPGHTPHPAASRDPVARTSPLQTPA 76
                                                                                               EYVHARLLRAGLSW-----SAPERASPAPG-----
      APGSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTAR-----GCFATVVEELFR 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWDAFV
                                                                                                                                                                                            232 AA;
                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nip2; Nip3; Bip1A; Bip5; Bip13; adenovirus; cell death;
ion; Bcl-2; protooncogene; mutational analysis; apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94US-0284139.
95US-0408095.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95US-0408095
                      -VLLRLGDELEQIRPSVYRNVARQLHI-PLQSEPVVTDAFLAVAGHIFS 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOUIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cell survival regulation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein #80-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
                                                                                                                                            14.48;
                                                                                                                             37;
                                                                                                                             Score 158; DB
Pred. No. 5.8e
37; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        232 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                197
                                                                                                                             DB 20;
.8e-09;
les 74;
                                                                                                                                                            Length
                                                                                                                             Indels
                                                                                             ----GRLAEVCT--
                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                             Gaps
                                                                                               69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192
                                                                                                                             7;
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Query Match Best Local S Matches 50

l Similarity 50; Conser

Conservative

14.3%; Score 157.5; DB 20; 22.4%; Pred. No. 6.8e-09; tive 37; Mismatches 79;

Length

236; 57;

Gaps

80

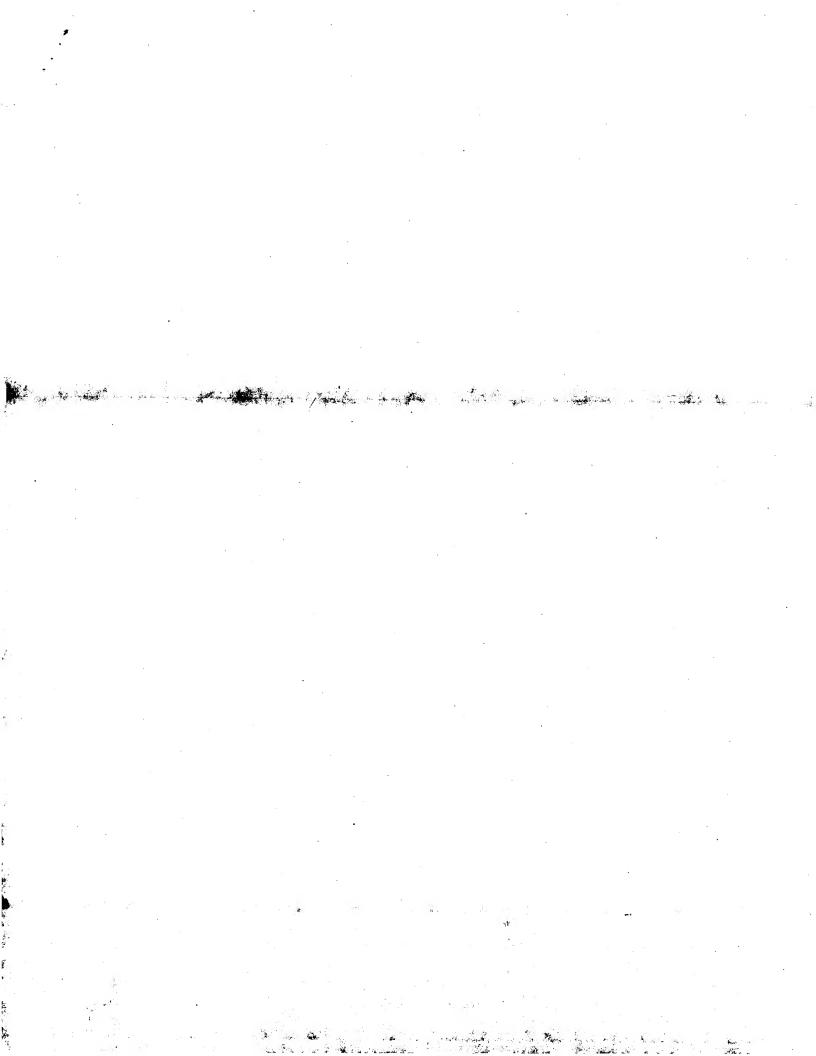
Sequence

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Qγ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 14
                                                                                                                                                           designated Bax. The Bax protein is used in a composition which comprises a bel-2 family member polypeptide, a naturally occurring Bax polypeptide and an antibody that binds to the Bax polypeptide. The specification also describes a composition comprising a hybrid protein comprising an activator domain of a transcriptional activator protein and a bel-2 family member having a BHI domain and a BH2 domain another hybrid protein comprising a DNA-binding domain of the transcriptional activator protein and a second bel-2 family member having a BHI domain and a BH2 domain; and a reporter gene linked to a transcriptional regulatory element whose transcriptional activity is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-NOV-1994;
26-AUG-1993;
25-MAY-1994;
                                            of the two bcl-2 family members. The compositions are used to identify modulators of bcl-2-related function, e.g. substances that inhibit binding of Bax to bcl-2, which would be potentially useful as drugs
                                                                                             dependent on the presence or absence of a dimer of the two hybrid proteins. The bcl-2 family members are selected from naturally occurring Bcl-2, Bcl-xL, Bax, Mcl-1, Al, fragments thereof, and mutants having a mutation in the BHI and/or BH2 domain that alters intermolecular binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-105119/09
                                                                                                                                                                                                                                                                                                                               The present sequence represents a murine Bcl-2 protein specification also describes Bcl-2 associated proteins
                                                                                                                                                                                                                                                                                                                                                                                Example 10; Fig 7; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                               DNA composition encoding bcl-2 two-hybrid and reporter system -identifying modulators of bcl-2 function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Korsmeyer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-NOV-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A murine Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAW87811;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (UNIW ) UNIV WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US5856171-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bcl-2-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW87811 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; Bcl-2 associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
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                              modulating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWDAFV 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVL 176
236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           function;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94US-0337646.
93US-0112208.
94US-0248819.
                              apoptosis
A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein; Bax; bcl-2; antibody; modulator;
apoptosis; dimer; Bcl-xL; Mcl-1; Al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           236
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                                                                                                                                                                                                                                                                                                                                              Bcl-2 protein.
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                                                                                                                      The present invention relates to a method of modulating apoptosis of a cell. The method comprises administrating to the cell an agent, comprising a BHI domain or BH2 domain, capable of modulating formation o at least one complex selected from bcl-2:bcl-2 complexes, bcl-XL:bcl-XL complexes, bcl-2:associated X protein (Bax):Bax complexes, bcl-2:Bax complexes or bcl-XL:Bax complexes Modulating apoptosis is especially useful in cancer therapy, and treating autoimmunity, immunodeficiency diseases (e.g. AIDS), reperfusion injury, myocardial infarction, stroke, traumatic brain injury, neurodegenerative diseases, aging, ischaemia, toxemia, infection, hepatitis, transplant rejection, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-NOV-1994;
26-AUG-1993;
25-MAY-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Murine: Bax; cytostatic; immunosuppressive; immunostimulant; infection apoptosis modulator; bcl-2 associated x protein; cancer therapy, AIDS; autoimmunity; immunodeficiency; reperfusion injury; stroke; aging; myocardial infarction; traumatic brain injury; ischaemia; bcl-2; neurodegenerative diseases; hepatitis; transplant rejection; toxemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Modulating apoptosis of a cell, useful in maintaining homeostasis in adult tissues, or treating proliferative or autoimmune diseases, comprises administering a bol-2 polypeptide that interacts with a 21 bcl-2 associated X protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murine bc1-2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Example 7; Fig 7; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-256104/26
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                           Bax (AAB74125),
                                                       toxemia, infection, hepatitis, transplant rejection, and lymphoproliferative diseases. The present sequence is murine Bcl-2, which was used in a sequence alignment in the present invention, with murine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (UNIW ) UNIV WASHINGTON.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
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93US-0112208.
94US-0248819.
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                           human Bax (AAB74126) and human Bcl-2 (AAB74127).
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                                                                                                              61 VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
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                          FVRKTLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS 197
YLNRHLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS 219
                                                        FTAR----GRFATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTE 176
                                                                                   LQSEPVVTDAFLAVAGHIFSAGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGE 156
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Search completed: April 29, 2003, 11:23:23 Job time: 33.5339 secs



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sp_unclassified:*
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Q9umx3 homo sapien
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Q9dgj5 gallus gall
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Q9v612 drosophila
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                      5 cricetulus
4 brachydanio
5 mus musculu
           musculu
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84.5	85	85	85	86	89.5	90	92	92	92	92	93	94	97	97	98	98.5	99	99	101	102	102	103	103	103	104	104	104.5	106.5
9.6	9.6	9.6		9.7	10.1	10.2	10.4	10.4	10.4	10.4	10.5	10.6	11.0	11.0	11.1	11.1	11.2	11.2		11.5	11.5	11.7			11.8	11.8	11.8	12.0
182	185	177	175	2497	172	209	192	173	149	114	172	173	179	178	204	163	221	193	180	233	188	233	233	180	217	188	233	238
16	12	2	H	16	11	1	9	4	6	4	11	11	4	11	13	6	13	11	6	6	4	6	σ	6	11	11	6	13
Q8XUQ3	Q8VBG1	Q9AEZ3	Q925A9	Q8XYB9	055179	Q9JK59	Q8SQ43	Q8WZ49	Q9GMG7	Q9NR76	055177	Q9JKL3	Q9NYG7	Q9CYW5	Q90ZH2	Q9MZS6	Q98U13	966880	Q9BDX7	Q9MYW4	Q9H1R6	Q9N1A2	Q9MZS7	Q9BDD5	Q99N35	Q9QWX2	Q8SQ42	Q90Z98
Q8xuq3 ralstonia s	l hepatit	Q9aez3 frankia sp.	Q925a9 rattus norv		O55179 mus musculu	Q9jk59 rattus norv	felis	Q8wz49 homo sapien	OVis	Q9nr76 homo sapien			Q9nyg7 homo sapien		Q90zh2 xenopus lae	ovis arie	Q98u13 xenopus lae	O88996 rattus norv	Q9bdx7 bos taurus		Q9h1r6 homo sapien	s sus		bos t	Q99n35 mus musculu		m	Q90z98 brachydanio

## ALIGNMENTS

088857 PRELIMINARY; PRT; 170 AA. 088857; Ol-NOV-1998 (TrEMBLrel. 08, Created) Ol-NOV-1998 (TrEMBLrel. 08, Last sequence update) Ol-JUN-2002 (TrEMBLrel. 21, Last annotation update)

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RESULT 1
088857
ID 0888
AC 088
Query Match
                                                                        SMART; SP
PROSITE;
SEQUENCE
                                                                                                                                                                           Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases. EMBL; AF051093; AAC61928.1; -. InterPro; IPR000712; Bc12_BH. InterPro; IPR002475; BC12_family. Pfam; PF00452; Bc1-2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bc1\mbox{-}2\mbox{-related} ovarian killer protein. BOK .
                                                                                                                                                                                                                                                                                                                                                                 HSU S.Y., HSueh A.J.W.;
HSU S.Y., HSueh A.J.W.;
"A splicing variant of the Bcl-2 member Bok with a truncated BH3
"Acmain induces apoptosis without dimerization with anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Bok is a pro-apoptotic bcl-2 protein with restricted expression in reproductive tissues and heterodimerizes with selective anti-apoptotic bcl-2 family members.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleosto
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
TISSUE=OVARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-OVARY;
Hsu S.Y., Hsu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Proc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=98024143; PubMed=9356461;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Natl. Acad.
                                                                                                                                                SM00337; BCL;
                                                                            PS50062; E
                                                                            BCL2_FAMILY;
; 18729 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sci.
       97.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U.S.A. 94:12401-12406(1997).
       Score 860;
                                                                        15E54361F448CF16 CRC64;
       DB
   Length 170;
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RESULT
035425
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Q9UL32
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Best I
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Matches
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                                                                   01-JAN-1998
01-JAN-1998
01-JUN-2002
                                                                                                                                       035425
035425;
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01-MAY-2000
01-JUN-2002
                       BCL-2-related
BOK OR BOKL O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bcl-2 related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (SEP-1998) to the EMBL/
EMBL; AF089746; AAF09129.1; -
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BC12_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9UL32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSu S.Y., Hsueh A.J.W.; "cDNA cloning of the human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                 181
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                                                                                                                                                                                                                                                                            STKPGFRSHWLVATICSFGRFLKAAFFLLLPER 170
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PF00452; BC1-2; 1.

F; SM00337; BCL; 1.

ITE; PS50062; BCL2_FAMILY;

FNCE 213 AA; 23540 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TWLRRRGGWTDVLKCVVSTDPGFRSHWLVATLCSFGRFLKAAFFLLLPER
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                                                                                                                                                                                                                                                                                                                                                                                                                 WGKVVSLY SAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGRLAEVCTVLLRL-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             al Similarity
170; Conserv
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167; Conserv
                         BOKL OR BOK
                98 (TrEMBLrel. 05, Created)
98 (TrEMBLrel. 05, Last seque)
12 (TrEMBLrel. 21, Last annot:
1cd ovarian killer protein.
1ct OR BOK OR MTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TrEMBLrel. 13,
(TrEMBLrel. 13,
(TrEMBLrel. 21,
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                                                                                                                                                              PRELIMINARY;
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K OR MTD. (Rat), a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96.48;
79.88;
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Last sequence up
                                                                   Last sequence up
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 852.5; DB 4
Pred. No. 2.9e-71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.
59509F8C7330517F CRC64;
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    RRA OCC
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Q9UMX3
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Best Local S
Matches 167
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Submitted (DEC-1997) to the EMBL/Ge
EMBL; AR027954; AAB87418.1; -.
EMBL; AF027707; AAC53582.1; -.
MGD; MGI:1858494; Bok.
InterPro: IPR000712; BC12_BH.
InterPro: IPR002475; BC12_family.
Pf0am; Pf00452; BC1-; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                               Q9UMX3;
Q9UMX3;
01-MAY-2000
                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=9606;
                                                                                                                                                                                 protein-like)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS50062; BCL2_FAMILY; SEQUENCE 213 AA; 23456 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPECIES-Mouse
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                       SEQUENCE FROM N.A
                                                                                                                                         Homo
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167; Conser
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78.4%;
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01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
BCL-2-related ovarian killer protein (Similar to BC)
killer protein-like-PENDING) (BCL-2-related ovarian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hsu S.Y., Kaipia A., McGee E., Lomeli M., Hsueh A.J.W.;
"Bok is a pro-apoptotic Bcl-2 protein with restricted ex
reproductive tissues and heterodimerizes with selective
Bcl-2 family members.";
Proc. Natl. Acad. Sci. U.S.A. 94:12401-12406(1997).
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SPECIES-Rat; STRAIN-SPRAGUE-DAWLEY;
MEDLINE-98024143; PubMed-9356461;
                                                                                                                                                                                                                                                                                                                                                                                                                               WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV
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                                                                                                                                                                                                                                                                                                                                                  STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
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Hsueh A.J.W.;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 828.5; DB 11; Pred. No. 4.8e-69; D; Mismatches 3;
Craniata; Vertebrata; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Craniata; Vertebrata; Sciurognathi; Muridae;
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F8755C45CB05D626 CRC64;
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  Hominidae;
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                                                                                                                       BCL-2-related
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Murinae; Rattus
                      Euteleostomi;
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re anti-apoptotic
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Best Local S
Matches 159
Query Match
Best Local Similarity
                                                                                                                 Zhang H., Holzgreve W., De Geyter C.;
"Evolutionarily conserved Bok proteins in FEBS Lett. 480:311-313(2000).

EMBL; AF275944; AAF81282.1; -.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; Bc12_family.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
Bcl-2-related ovarian killer protein.
Gallus gallus (Chicken).
Gallus gallus (Chicken).
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                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE=20487164; PubMed=11034351;
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SMART; SM00337; BCL;
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                                                                  PROSITE; PS50062; BCL2_FAMILY; SEQUENCE 213 AA; 23619 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                Archosauria; Aves; Neognathae;
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77.1%;
61.5%;
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Score 681.5; DB Pred. No. 2e-55;
                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi;
; Galliformes; Phasianidae; Phasianinae;
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                                                                       B3AF7049F25442E3 CRC64;
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                        13;
                                                                                                                                                                                                                                                             Bcl-2 family.";
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RESULT
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ODGJ5;
Ol-MAR-2001 (TrEMBLrel. 16, Created)
Ol-MAR-2001 (TrEMBLrel. 16, Last sequence update)
Ol-MAR-2001 (TrEMBLrel. 21, Last annotation update)
Ol-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Bcl-2-related ovarian killer protein.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eukaryota; Metazoa; Chordata; Galliformes; Phasianidae; Phasiani)
Q8T8Y5;
Q8T8Y5;
01-JUN-2002
01-JUN-2002
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                Pfam; PF00452,
SMART; SM00337; BCL; 1.
SMART; SM00337; BCL2_FAMILY;
SMART; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                   Mils E.M., Johnson A.L., Bridgham J.T.;
"Characterization and Expression of Bok in the Hen Ovary.";
Submitted (JUL-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF290888; AAG01182.1; -.
InterPro; IPR000712; BC12_BH.
InterPro; IPR002475; BCL2_family.
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                                                                                                      WGKVVSLYAVAAGLAVDCVRHAQPAMVHTIVDCLGEFVRKTLVTWLKRRGGWADITKCVV
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                                                                                                                                                               WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 137
                                                                                                                                                                                                                                                MEVLRRSSVFAAEVMEVFBRSPTDKELVSQAKALCRDYINSRLIRXGVSWSKPEHNTPVP
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(TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
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60.6%;
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9; Mismatches
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Best Local
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NON_TER
SEQUENCE
                                                                                        HSSP; Q07817; 1MAZ.
FlyBase; FBgn0040491; Buffy.
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR002475; BCL2_family.
Pfam; PF00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                    "Debcl, a proapoptotic bcl-2 homologue, is a Drosophila melanogaster cell death machinery. J. Cell Biol. 148:703-714(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 01-JUN-2002 (TrEMBLrel. 21, Bcl-2-like protein BUFFY (Fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9NGX3
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BUFFY.
                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
MEDLINE=20153510; PubMed=10684252;
MEDLINE=20153510; PubMed=10684252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Arthropoda; Tracheata; He
Pterygota; Neoptera; Endopterygota; Diptera;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bcl-2-like protein BUFFY OR CG8238.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ephydroidea; Drosophilidae;
NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9NGX3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ephydroidea; Drosophilidae;
NCBI_TaxID=7227;
                                                                   PROSITE; PS50062; BCL2_FAMILY;
                                                                                                                                                                                                                                                                                                                              Richardson H., Kumar S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Drosophila melanogaster (Fruit fly)
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Brokstein P.,
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                          34909 MW;
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RA Ballew R. M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beesson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Dodson K.J., Devi S., Dahlke C., Davenport L.B., Davies P.,
RA Harris N.J., Eli Y., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mentazolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Rainert K., Remington K., Saunders R., Venter E., Wang A.H., Wang X.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Wang A.H., Wang X.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Wang A.H., Wang X.,
RA Yeinst N., Wassarman D.A., Weinstock G.M., Pan S., Yao Q.A.,
Zheng L.,
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Q9V612;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=BERKELEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ephydroidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster (Fruit fly)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BUFFY OR CG8238
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20196006;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LVATL-CSFG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ERMHPRIYNGVARQICRNPGGEFHTPDAVSLLLGAVGRELFRVEITWSKVISLFAIAGGL 220
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (TrEMBLrel.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophilidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----RFLKAAFFLLLPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed=10731132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.1%;
26.9%;
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13,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 178;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          305
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     247
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .2e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -SWSAP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brachycera; Muscomorpha;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 313;
                                                                                                                                                                                                                                                          Ketchum K.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66;
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Best Local S
Matches 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; AE003825; AAF58628.1; -.
HSSP; QO'8817; IMAZ
FLYBase; FBgn0040491; Buffy.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR002475; BC12_family.
Pfam; PP00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                               01-MAY-2000 (TrEMBLrel. 13, Created)
01-OCT-2000 (TrEMBLrel. 21, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
Death EXECUTIONER BCL-2 homolog protein (PROAPOPTOTIC BCL-2 homolog
DEBCL) (BCL-2 family member protein) (BCL-2 ORTHOLOG DBORG-1).
DEBCL OR DBORG1 OR BOX OR BCL2 OR BG1 OR CG12397.
DEBCL OR DBORG1 OR BOX OR BCL2 OR BG1 OR ROB-1 OR CG12397.
Drosophila melanogaster (Fruit fly).
Bukaryota; Meoptera; Endopterygota; Diptera; Brachycera; Muscomorph;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorph;
                                                                                                                                                                                                                                                                                                                                                      Q9V9C8;
                    Zhang H.,
Reed J.C.;
                                                                "Debcl, a p
Drosophila
                                                                                                                                                                             cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zheng X.H., Zhong F.N., Zhong W., Z
Gibbs R.A., Myers E.W., Rubin G.M.,
"The genome sequence of Drosophila
Science 287:2185-2195(2000).
                                                                                         SEQUENCE FROM N.D. PubMed=10684252; MEDLINE=20153510; PubMed=10684252; Oninn L.M., Huang D.C.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                Submitted
                                                                                                                                       Igaki
  conservation
                                     SEQUENCE FROM N.
                                                                                   Richardson H.,
                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                 REVISIONS
                                                                                                                                                                                               Miura M.;
                                                                                                                                                                                                        Igaki T
                                                                                                                                                                                                                MEDLINE=20105529; PubMed=2015529;
                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
"Drosophila pro-apoptotic conservation of cell death
                                                                                                                                                                                       'Drob-1,
                                                                                                                                                                                                                          TISSUE-EMBRYO
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                                                                                                                                                                             death
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                                                                                                                                                                    Natl.
                                                        Biol.
                                                                                                                                                                                                        ., Kanuka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                  a Drosophila
+h ":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PS50062; BCL2_FAMILY; 1.
247 AA; 27466 MW; A2C4325AFF4C1620 CRC64;
                                                      proapoptotic Bcl-2 homologue, is a a melanogaster cell death machinery. iol. 148:703-714(2000).
                                                                                                                                                 TO N-TERMINUS
                           Huang
                                                                                                                                Kanuka H., (SEP-1999)
                                                                                                                                                                    Acad.
                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                             Drosophilidae;
                                                                                   Kumar S.
                           0 P
                                                                                                                                                                                                      н.,
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                                                                                                                              , Inohara
                            Кe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19.2%;
                                                                                                                                                                                                       Inohara N.,
                                                                                                                                                                                                                                                             Endopterygota; Diptera;
ilidae; Drosophila.
 death
                                                                                                                                                                    U.S.
                                                                                                                                                                                      member
                          z
,
         Bc1-2/Bax homolog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19;
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 mechanisms
                           Matsuyama
                                                                                                                                N., Sawamoto K., EMBL/GenBank/DDBJ
                                                                                                                                                                                     of the Bcl-2/CED-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 169.5; DB 5
Pred. No. 5.8e-08;
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                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                   97:662-667(2000)

    Mismatches

                                                                                                                                                                                                        Sawamoto K., Nunez G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zhou X., Zhu S.,
., Venter J.C.;
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                           s.,
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                                                                                            Coombe
                          Hammock B.,
                                                                                                                                                                                                                                                                                                                                                               AA
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          reveals
                                                                  component of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42;
                                                                                                                                                                                                                                                                      Brachycera; Muscomorpha;
                                                                                                                                Okano H., databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                           Σ,
                                                                                                                                                                                     family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
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                                                                                           Read S.H.,
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          evolutionary
                            Godzik
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                                                                                                                                        Miura
                                                                                                                                                                                                        Okano
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                                                                          the
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Smith H.O.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                 206
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RA Wann K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
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RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Erriac S., Fleischmann W.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Kimmel B.E., Godriel J.H., Gu Z., Gelbart W.M., Glasser K.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Liu X., Mattel B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Kimmel B.E., Nollain R.V., Mobarry C., Morris J., Moshrefi A.,
RA Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Reinert K., Remington K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Reinert K., Remington K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
RA Wang Z.-Y. Massarman D.A., Weinstock G.M., Weissenbach J.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA Chent R., Shue B., Ra Karley R.C., Wang A.H., Wang X.,
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"Potential
(BOK).";
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                                                                                                                                                                          EMBL;
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MEDLINE=20196006; PubMed=10731132;
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                                                                                                                                  FlyBase; FBgn0029131; debcl
                                                                                     InterPro;
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AF178430; AAF26289.1;
AF228044; AAF89165.1;
                                                                                                                                                                          AF222004; AAF44324.1;
AF244352; AAF44714.1;
                                                                                                                                                                                                                                                                AE003789; AAF57365.1; AF216752; AAF25955.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AB032430; BAA89603.2;
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al Drosophila
                                            IPR000712;
IPR002475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (MAR-2000) to the EMBL/GenBank/DDBJ
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BCL2_family.
Znf_C2H2.
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Matches 42
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Best Local
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01-DEC-2001
01-JUN-2002
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SEQUENCE
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PROSITE; PS50157; ZINC_FINGER_C2H2_2;
DNA-binding; Zinc-finger.
CONFLICT 1 86 MISSING
CONFLICT 215 215 I -> V (
                                                                                                                                                                                                                                                                                                                                                                                                  FlyBase; FBgn0029131; debcl.
InterPro; IPR000712; Bc12_BH.
Pfam; PF00452; Bc1-2; 1.
SMART; SM00337; BCL; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID-7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GH01265p.
DEBCL OR CG12397.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q95U83;
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216 DCVRQGHFDYLQCLIDGLAEIIGRPGLLADRQRRMVG
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                                                            94 DCVRQAQPAMVHALVDCLGEFVRK--TLATWLRRRGG 128
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                                                                                                                                                                                                                                                                                           l Similarity
42; Conserv
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43; Conserv
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300 AA;
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217 C
32940 MW;
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27.6%;
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Last sequence up
Last annotation
                                                                                                                                                                                                                                                                                                              Score 138;
Pred. No. 6.
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Pred. No. 8e-08;
7; Mismatches
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I -> V (IN REF. 1).
C -> R (IN REF. 4).
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                                                                                                                                                                                                                                                                                      Gaps
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RESULT 13
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"Construction of a robust CHO cell
Submitted (JUL-2001) to the EMBL/Ge
EMBL; AF404339; AAK92201.1;
InterPro; IPR000712; Bcl2_BH.
InterPro; IPR003093; Bcl2_BH2
InterPro; IPR003475; BCL2_Family.
InterPro; IPR004755; BCL2_reg.
                Brachydanio rerio (Zebrafish) (
Eukaryota; Metazoa; Chordata; C
Actinopterygii; Neopterygii; Te
Cyprinidae; Danio.
NCBI_TaxID=7955;
[1]
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Q923R6;
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PROSITE; P
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01-JUN-2002
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01-OCT-2000
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
B-cell lymphoma protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10030;
                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                          118
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG------
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                                                                                                                                                                                                                                                                                                                                                                                                                  HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          {\tt FTARGRFAT} {\tt VVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR}
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          As; TIGR00865; bcl-2; 1.

3; PS50062; BcL2_FAMILY; 1.

3; PS01080; BH1; UNKNOWN_1.

3; PS01258; BH2; UNKNOWN_1.

3; PS01259; BH3; UNKNOWN_1.

3; PS01269; BH4_1; UNKNOWN_1.

3; PS01269; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            236
                                                                                                                                                                                                ) (TrEMBLrel. 15, 0) (TrEMBLrel. 15, 0) (TrEMBLrel. 21, 0)
                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14.6%;
18.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26500 MW; BEDF052EF32CA8B8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19,
19,
21,
2.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26; Mismatches
                                                                                   Teleostei;
                                                                                                                                                                                                   Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 129.5; DB 11;
Pred. No. 0.00028;
Pred. No. 55;
                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                danio).
ta; Vertebrata; Eu
ei; Ostariophysi;
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                                                                                                           Euteleostomi;
                                                                                        Cypriniformes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               91;
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SEQUENCE FROM N.A

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RX RA RT RT DR DR DR DR DR DR DR DR SQ
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Best Local S
Matches 25
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Best Local S
Matches 34
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                                                                                                                                                                                                                          NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus (Mouse).
Mus musculus (Mouse).
Metazoa; Chordata;
Metazoa; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-2001 (TrEMBLrel. 01-JUN-2001 (TrEMBLrel. 01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nterpro; IPRU04--, nterpro; IPRU04--, nterpro; IPRU0452; BC1-2; 1.

Pfam; PF00452; BC1-2; 1.

SMART; SM00337; BCL; 1.

PROSITE; P550062; BC12_FAMILY; 1.

PROSITE; P550062; BC12_FAMILY; 8A71A630A56FDC32 CRC64;

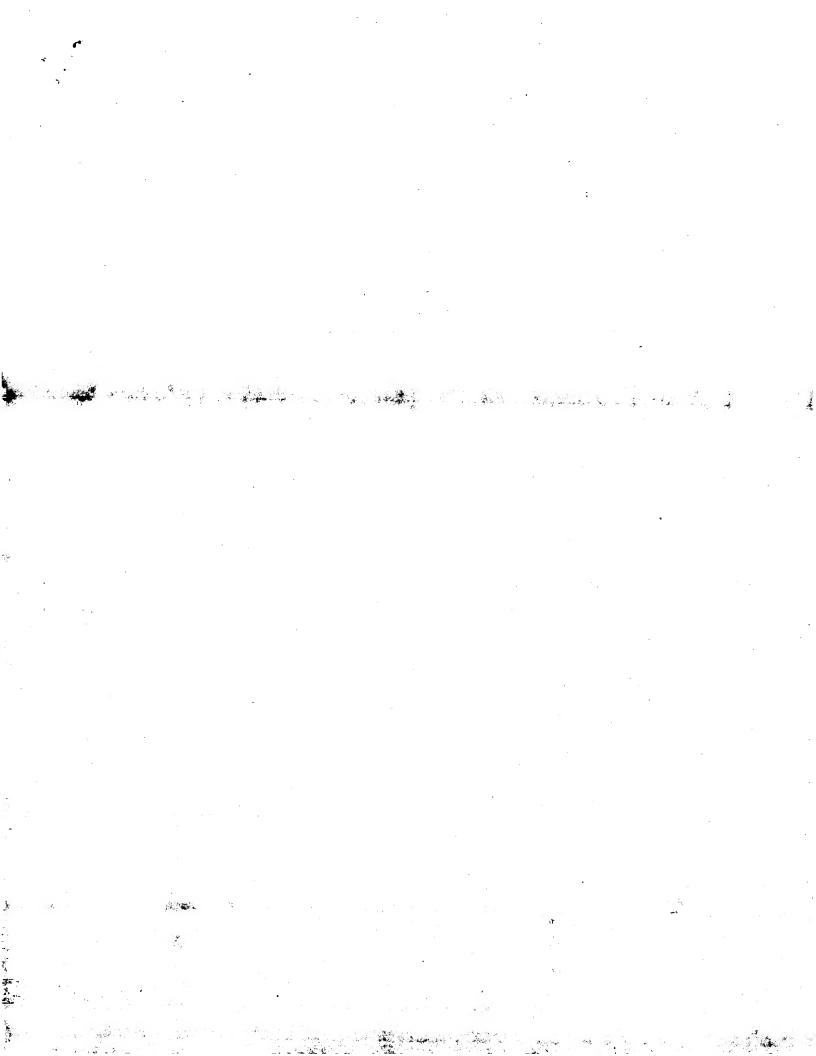
PROSITE; P550062; BC12_FAMILY; 1.

P50051TE; BC12_FAMILY; 1.

P50051TE; BC12_FAMILY; 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF231015; AAF66960.1; -. HSSP; P53563; 1AF3. InterPro: TDDCCCCC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (MAR-1999) to the EMBL/GenBank/DDBJ databases EMBL; AF133279; AAK15454.1; -. EMBL; AF133281; AAK15454.1; JOINED.
                                                                                                                                                                                                                                                                                                                                     Pfam; PF00452; Bcl-2; SMART; SM00337; BCL; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=129/SVJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000712; Bcl2_BH. InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Inohara N., Nunez G.; "Genes with homology to mammalian apoptosis regulators
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=20373792; PubMed=10917738;
                                                                                                                                                                                                                                                                                                                  PROSITE;
                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR000712; BC12_BH.
InterPro; IPR002475; BCL2_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; P53563; 1AF3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   yene Bcl-x-gamma."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rang X.-F., Cantor H.; "Novel cDNA structure and genomic organization of apoptosis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                              109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TLATWLRRRGGWTDVLKCVVSTKPGFRSHWLVATLCSFGRFL 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAPGGRLA 65
                                            QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 168
                                                                                      EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTQDVFIRVAREIFSDGKFNWGRVVALFYFACRLVIKAISTRVPDIIRTIISWTMSYIQE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RSQLGGVELCD-----PSHKRLAQCLQQIGDELDGNAQLQSMLN------NSNLQ
                                                                                                                                  Similarity
25; Conserv
                                                                                                                                                                                                                                                                  PS50062; BCL2_FAMILY; 1.
PS01080; BH1; 1.
PS01259; BH3; 1.
                                                                                                                                                                                                                          219
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                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                          AA;
TDVLKCVVSTKPGFRSH----
                                                                                                                                                                                                                        24224 MW;
                                                                                                                                                    12.3%;
                                                                                                                                                                                                                                                                                                                                                          1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17, Created)
17, Last sequence update)
21, Last annotation update)
a x-gamma (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29;
                                                                                                                               Score 108.5; DB Pred. No. 0.022; 7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Craniata; Veri
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                          EB352EC4CFAA6AF5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              219
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thi; Muridae;
-WLVAT 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A
                                                                                                                                                                            DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64;
                                                                                                                                  43;
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                                                                                                                                                                         Length
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; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                identified
                                                                                                                                                                              219;
                                                                                                                                  15;
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                                                                                                                                                                                                                                                                                          Query Match
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Matches 25
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01-JAN-1998
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                         PROSITE;
PROSITE;
PROSITE;
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMART; SM00337; BCL;
SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     apoptosis in T cells.";
Immunity 7:629-639(1997).
EMBL; U51277, AAC53458.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              035843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-B6/CBA; TISSUE-THYMUS;
MEDLINE-98051053; PubMed-9390687,
Yang X.-F., Weber G.F., Cantor H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bcl-x-gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  035843;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIGRFAMs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MGD; MGI:88139; Bc121.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "A novel Bcl-x isoform connected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=10090;
                                                                                                                                                                                              125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169
                                                                                            185 NGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET
                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000712; Bcl2_BH
completed: April
ne : 22.7493 secs
                                                                                                                                                                                                                                    66 EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                              QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NGGWGVSGGTPLRSVFRRLVQV-PGVAEHVCDPSLWEVET . 207
                                                                                                                                             RGGW-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P53563; 1AF3
                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PS50062; BCL2_FAMILY; PS01080; BH1; 1.
                                                                                                                                                                                                                                                                                                                                                                                         PS01260; BH4_1; 1.
PS50063; BH4_2; 1.
235 AA; 26122 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PS01259; BH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR003093; Bcl2_BH4.
IPR002475; BCL2_family.
IPR004725; Bcl2_reg.
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(TrEMBLrel.)
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                    29,
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Last sequence update)
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                    11:25:41
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GenCore version 5.1.4\_p5\_4578 Copyright (c) 1993 - 2003 Compugen Ltd.

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Title:
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BCL2_CHICK
AR1_XENLA
BCLX_RAT
BCLX_PIG
BCLX_HUMAN
BAXB_HUMAN
BAXB_HUMAN
BAXA_HUMAN
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P10415 homo sapien O02718 bos taurus O9jjy8 cricetulus O9jjy8 cricetulus P10417 mus musculu O00709 gallus gall O91827 xenopus lae O07816 gallus gall O91827 arttus norv O77737 sus scrofa O7817 homo sapien O07814 homo sapien P70345 mus musculu O91828 xenopus lae O07812 homo sapien O16611 mus musculu O31828 homo sapien O16613 mus musculu O3690 rattus norv P5269 homo sapien O02703 bos taurus O8734 mus musculu O308734 mus musculu O308734 mos sapien O12703 bos taurus O8734 mus musculu O13014 homo sapien P51649 homo sapien P51648 homo sapien P516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Description
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## ALIGNMENTS

8888888888	C C C C C C C C P P P P P P P P P P P P	?	RESULT BCL2_R ID BC AC DT
Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity).  FUNDECLIULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. FISSUE SPECIFICITY: Expressed in a variety of tissues, with highest levels in reproductive tissues. In the adult brain, expression is localized in mitral cells of the olfactory bulb, granule and pyramidal neurons of hippocampus, pontine nuclei, cerebellar granule neurons, and in ependymal cells. In prenatal	SEQUENCE OF 19-172 FROM N.A.  REDLINE-95059917; PubMed=7969891;  Castren E., Ohga Y., Berzaghi M.P., Tzimagiorgis G., Thoenen H.,  Lindholm D.;  "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain.";  "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain.";  "bcl-2 messenger RNA is localized in neurons of the developing and adult rat brain.";  "bcl-2 messenger RNA is localized in neurons of cell systems including factor-dependent lymphohematopoietic and neural cells.  "including factor-dependent lymphohematopoietic and neural cells.  Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAR-1).	SEQUENCE FROM N.A.  SEQUENCE FROM N.A.  TISSUE-Brain;  MEDLINE-94193015; PubMed-8144041;  Sato T., Irie S., Krajewski S., Reed J.C.;  "Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.";  Gene 140:291-292(1994).  [2]  SEQUENCE FROM N.A.  STRAIN-Sprague-Dawley; TISSUE-Ovary;  MEDLINE-95129487; PubMed-7828536;  TILLY J.L., Tilly K.I., Kenton M.L., Johnson A.L.;  "Expression of members of the bcl-2 gene family in the immature rat ovary: equine chorionic gonadotropin-mediated inhibition of granulosa cell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels.";  Endocrinology 136:232-241(1995).	RESULT 1  BCL2_RAT STANDARD; PRT; 236 AA.  DC 12-2 RAT STANDARD; PRT; 236 AA.  AC P49950; 062837; 064032;  DT 01-CCT-1996 (Rel. 34, Created)  DT 01-NOV-1997 (Rel. 35, Last sequence update)  DT 15-JUN-2002 (Rel. 41, Last annotation update)  DT 15-JUN-2002 (Rel. 41, Last annotation update)  DE Apoptosis regulator Bcl-2.  GN BCL2 OR BCL-2.  GN BCL2 OR BCL-2.  GN Rattus norvegicus (Rat).  OC Rattus norvegicus (Rat).  OC Mammalia; Eutherla; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.  OX NCBI_TaxID=10116;

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Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                  TIGREAMS; TIGRO086:
PROSITE; PS50062; E
PROSITE; PS01080; E
PROSITE; PS01258; E
PROSITE; PS01259; E
PROSITE; PS01260; E
PROSITE; PS50063; E
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InterPro; IPR004725; B
Pfam; PF00452; Bcl-2;
Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute.
                                                                                                                                                                                                                              TRANSMEM
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                                                                     28 VAQAKALG -----
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DOMAIN:
for inte
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bc12 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bc12 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               L14680; AAA53662.1;
U34964; AAA77687.1;
S74122; -; NOT_ANNOT;
Q07817; 1MAZ.
VHRDTAARTSPLRPLVANAGPALSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EN
                                             MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDTGDEDSAPLRAAPTPGIFSFQPESNRTPA
                                                                                             L Similarity
45; Conserv
                                                                                                                                                                                                                                                                                                                                                                                      SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             interaction with RAF-1 (By similarity)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR000712;
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                                                                                                                                        42
157
164
212
236
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                                                                                             Conservative
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90
133
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BH4_2; 1.
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104
152
199
230
35
70
42
157
164
                                                            -REYVHARLLRAGLSW-----SAPERASPAPG
                                                                                                                                          26622
                                                                                                                                                                                                                                                                                                                                                                                                                                Bcl2_BH4.
Bcl2_reg.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCL2_family.
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                                                                                                                                          MW;
                                                                                                                                                                                                                                                                                       Mitochondrion;
                                                                                             26;
                                                                                                                                                   Score 140; DE
Pred. No. 1.5e
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                is not removed.
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                                                                                                        DB 1;
.5e-06;
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                                                                                                                                                                                                   CASPASES) (BY SIMILARITY).
ION (BY PKC) (BY SIMILARITY).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Usage
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BCL2_HUMAN
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                                                                                                                                                                                                                                                                                                                                                                                                                          "Alternative promoters and exons, somatic of the Bcl-2-Ig fusion gene in lymphoma.";
                     Yin
                                         MEDLINE-94239528;
                                                                                                                             MCDLINE=91066924; pubMed=2250705;
Hockenbery D., Nunez G., Milliman
"Bel-2 is an inner mitochondrial m
programmed cell death.";
                                                                                                                                                                                                                SUBCELLULAR LOCATION
                                                                                                                                                                                                                                                          Blood
                                                                                                                                                                                                                                                                           oncogenes of
                                                                                                                                                                                                                                                                                                                                       MEDLINE=92096610;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goldman P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. (ISOFORM ALPHA)
MEDLINE-88196071; PubMed-2834197;
Seto M., Jaeger U., Hockett R.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2/immunoglobulin transcript
translocation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE OF COLUMN S.D., Sklar J.;
Cleary M.L., Smith S.D., Sklar J.;
"Cloning and structural analysis of cDNAs
"/immunoalobulin transcript resulting from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. MEDLINE=87002488; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     in a variety of tissues including lymphoid adult and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REVISIONS TO 96; 110 AND 237.
MEDLINE=92375724; PubMed=1508712;
Eguchi Y., Ewert D.L., Tsujimoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bc1-2,
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"Analysis of the structure,
                                                                 MUTAGENESIS
                                                                                                           Nature
                                                                                                                                                                                                                                                                                                 Panaka S., Louie D.C., Kant J.A., Reed J.
Frequent incidence of somatic mutations
                                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 1-131 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                           EMBO
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  1 X.-M., Ol
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                                                                                                                                                                                                                                                        enes of non-Hodgkin's lymphomas."; 79:229-237(1992).
                                                                                                         nmed cell death.";
348:334-336(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sis of the structure, transcripts, and protein protein for the gene involved in human follicular lymphoma. Natl. Acad. Sci. U.S.A. 83:5214-5218(1986).
                                                                                                                                                                                                                                                                                                                                                                                                        7:123-131(1988).
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                   Oltvai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Korsmeyer S.J
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 characterization of the
  PubMed=8183370;
Z.N., Korsmeyer
ins of Bcl-2 are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PubMed=2875799;
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                                                                                                                                                                                                                                                                                                                                       PubMed=1339299;
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Primates;
    Korsmeyer
Bcl-2 are
                                                                                                                                                                                                                                                                                                                                                            (ISOFORM ALPHA),
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C.,
S.J.;
required
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                                                                                                                                                   Schreiber R.D., cane protein that
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      inhibition
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neuronal organs
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                                                                                                                           use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                This
    EMBL; M13994;
EMBL; M13995;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ueno K., Hardwick J.M.;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Leukemia
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCL-2
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                                                                                                                                                                                                                                                                                                            s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no restricted the state of the s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 regions.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
DATABASE: NAME-Atlas Genet. Cytogenet. Oncol. Haemato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity). PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             promoting further caspase activity.
DISEASE: Involved in follicular lymphoma (FL) (also known as type
II chronic lymphatic leukemia) by a chromosomal translocation
II chronic lymphatic leukemia) by a chromosomal translocation
L(14;18)(q32;q21) which involves Bcl2 and immunoglobulin gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         are produced by alternative splicing. TISSUE SPECIFICITY: Expressed in a vari DOMAIN: The BH4 domain is required for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (BY similarity). Also interacts with APAF-1 and RAF-1. SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum. ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 www-"http://www.infobiogen.fr/services/chromcancer/Genes/BCL2ID49.html"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for interaction with RAF-1.
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phosphorylated and inactivated by an ASKI/Jun N-terminal phosphorylated and activated at G(2)/M.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CASPASES,
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AAA51814.
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                                                                                                                                                                                                                                                                                                                                                                EMBL outstation
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PROSITE;
PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                               MUTAGEN
MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR;
                                                                                                                                                                                                                                                                                                                                                                                          MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                            MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mitochondrion;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
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137
                              71
                                                                 77
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; C37332; C37332.
; D37332; D37332.
                                                                                                                                                                          EYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A29409; TVHUA1
B29409; TVHUB1
                              LLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT
                                                                                                                                       KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
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                                                                 APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARGRFATVVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             M14745; AAA35591.1;
X06487; CAA29778.1;
S72602; AAD14111.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF02180; BH4; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF0045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HGNC:990; BCL2
                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IPR000712; BC12_BH4.; IPR003093; BC12_BH4.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR002475;
                                                                                                                                                                                                                                                                                 129
239
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10 30
10 30
93 107
136 155
187 20
212 23
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59
117
                                                                                                                                                                                                              Conservative
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64
145
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                                                                                                                                                                                                                                                                                 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; Apoptosis; Alternative splicing; Transmembrane;
Phosphorylation; Chromosomal translocation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bc1-2;
                                                                                                                                                                                                                                                                  48
59
117
129
26266 .
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   вн3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BH1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30
107
155
202
233
233
70
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19.4%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mutation
                                                                                                                                                                                                                                                                                   WW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALT_SEQ.
                                                                                                                                                                                                                                                                            /FTId=VAR_000829.
/FTId=VAR_000829.
D-A: ABOLISHES CLEAVAGE BY CASPA:
D-A: NO EFFECT ON CLEAVAGE BY CA:
G-A: NO HEFERODIMERIZATION WITH E
LOSS OF ANTI-APOPTOTIC ACTIVITY.
W-A: NO HEFERODIMERIZATION WITH E
LOSS OF ANTI-APOPTOTIC ACTIVITY.
I-> F (IN REF. 4).
P-> T (IN REF. 3).
S-> R (IN REF. 3).
S-> C (IN REF. 4).
S-> C (IN REF. 4).
                                                                                                                                                                                                              26;
                                                                                                                                                                                                                           Score 133;
Pred. No. 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BH2.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLEAVAGE (BY CASPASE-3).
PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUTATION).
/FTId=VAR_000828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MUTATION)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /FTId=VAR_000827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -> I (IN NON-HODGKINS-LYMPHOMA; SOMATIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           s
'-
                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                         ABOLISHES CLEAVAGE BY CASPASE-3.
NO EFFECT ON CLEAVAGE BY CASPASE-3.
NO HETERODIMERIZATION WITH BAX AND
OF ANTI-APOPTOTIC ACTIVITY.
                                                                                                                                                                                                                                                                                                                                                                                          NO HETERODIMERIZATION WITH BAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (IN NON-HODGKINS-LYMPHOMA;
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                                                                                                                                                                                                        /.le-06;
hes 52;
                                                                                                                                                                                                                                                 DΒ
                                                                                                                                                                                                                                              Length 239;
                                                                                                                                                                                                              Indels
                                                                                                                                                                                                              ; 88
                                                                                                                                                                                                            Gaps
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                                                                                                                                                                          61
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B 8

197 AFVELYGPSMRPLFDFSWLSLKTLLS

154 222

DVLKCV-VSTKPGFRSHWL-VATLCS

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| Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Control | Cont
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BCL2_BC
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or send a
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002718;
                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
Bovidae; Bovinae; Bos.
NCBI_TaxID=9913;
                                      HSSP;
                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (MAR-1997) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Reyes R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-Holstein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-OCT-2001 (Rel.
16-OCT-2001 (Rel.
15-JUN-2002 (Rel.
   InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Apoptosis regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Bovine leukemia virus associated-leukemogenesis is correlated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                          PTM: Protectivitically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BHI and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELIULAR LOCATION: Outer mitochondrial membrane, intracellular and the february of the substance of the s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity).

DOMAIN: The BH4 domain is required for anti-apoptotic activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  by other protein kinases s
kinases. Dephosphorylated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           occurs during the G2/M phase of the cell cycle (By similarity) the absence of growth factors, Bcl2 appears to be phosphorylated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               membrane of the nuclear envelope and the endoplasmic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          suppression of programmed cell
                                  U92434; AAB53319.1;
Q07817; 1MAZ.
                                                                                                                                              non-profit institutions as long ad and this statement is not removed. s requires a license agreement (See lan email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                interaction with RAF-1 (By similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Bovine).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE-Thymus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . 40, Last
. 41, Last
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BCL2_family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 annotation update)
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1 by protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                as ERKs
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                                                                                                                                                                                    (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          phosphatase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A
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                                                                                                                                                                                                                                                             as its content
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                                                                                                                                                                                                                   Usage
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                                                                                                                                                                                                                                                                                        restrictions
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                                                                                                                                                                                                                                                                                                                                          EMBL
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                       SITE
MOD_RES
SEQUENCE
                                                                                                                                                                                                   BCL2_CRILO Q9JJV8;
                                   protein. Biochem.
                                                                                                                                                                         16-OCT-2001
16-OCT-2001
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SMART;
                                                                                                                            Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                                                        BCL2
MEDLINE=21092839;
Tomicic M.T., Kai
                 SEQUENCE FROM N.A.,
                                                                    TISSUE=Ovary;
MEDLINE=20431763; PubMed=10973819;
                                                                                                          NCBI_TaxID=10030;
                                                                                                                     Cricetulus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00452; Bc1-2;
                                                     Tomicic M.T., Christmann M., Kaina B.;
"Cloning and functional analysis of cDNA encoding
                                                                                        SEQUENCE FROM N.A
                                                                                                                                                                 Apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                         197
                                                                                                                                                                                                                                                                                            137
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                                                                                                                                                                                                                                                                                                             81
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                                                                                                                                                                                                                                                                                                                                                                   17
                                                                                                                                                                                                                                                                                                                                                                                  37 EYVHARLLRAGLSW-----SAPERASPAPG--
                                                                                                                                                                                                                                                         RPLFDFSWL-
                                                                                                                                                                                                                                                                          KPGFRSHWLVATLCSFGRFLKAAFFLLL
                                                                                                                                                                                                                                                                                                             VVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV-VST
                                                                                                                                                                                                                                                                                                                                                                   KYIHYKLSQRGYEWDAGDAGAAPPGAAPAPGILSSQPGRTPAPSRTSPPPPPAAAAAGPAP
                                                                                                                                                                                                                                                                                            IVAFFEFGGVMCVESVNREMSPLVDSIALWMTEYLNRHLHTWIQDNGGWDAFVELYGPSM
                                                                                                                                                                                                                                                                                                                               SPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARERFATVVEELFRDGVNWGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; PS50062; BCL2_F
; PS01080; BH1; 1
; PS01258; BH2; 1
; PS01259; BH3; 1
                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PS50063;
                                  Biophys.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PS01260;
                                                                                                                                                      ., Last sequence update)
regulator Bcl-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR000712;
IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transmembrane; Mitochondrion; PhosphoryLation
                                                                                                                                                                                                                                                                                                                                                                                                                                                          10
64
69
83
126
177
177
202
                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                        AA,
                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BH4_1; 1.
BH4_2; 1.
         PubMed=11181062;
                                   Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                30
68
72
97
145
192
223
35
                                                                                                                                                                                                                                                         ----SLKALLSLAL
                 AND CLEAVAGE BY CASPASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bc1-2;
                                                                                                                                                                                                                                                                                                                                                                                                              14.9%;
19.7%;
                                   Commun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FAMILY;
                                                                                                                                                                                                                                                                                                                                                                                                                                         MW.
                                                                                                                                                                                                                                                                                                                                                                                                     26;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 132; DB 1;
Pred. No. 8.4e-06
6; Mismatches 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POLY-PRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POLY-ALA.
                                                                                                                                                                                                            PRT;
                                   275:899-903(2000)
                                                                                                                                                                                                                                                         215
                                                                                                                                                                                                                                                                           167
                                                                                                                                                                                                             236
                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                 ----GRLAEVCTVLLRLGITWGK
                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                     Length 229
                                                      the hamster Bcl-2
                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY)..
                                                                                                                                                                                                                                                                                                                                                                                                      66;
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Query Match
Best Local
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                                        MOD_RES
SEQUENCE
                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                      TIGRFAMS;
PROSITE; F
                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no rest use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an
                                                                    SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>:</u>
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                                                                                                                                                                                                                                                                SMART; SM00337;
SMART; SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement
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                                                                                                           DOMAIN
                                                                                                                                      Apoptosis;
                                                                                                                                                                                                                                                                                          Pfam; PF00452;
Pfam; PF02180;
                                                                                                                                                                                                                                                                                                                                                                                HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                       or send an email to license@isb-sib.ch).
                                                                                 TRANSMEM
                                                                                               DOMAIN
                                                                                                                           DOMAIN
                                                                                                                                                                   PROSITE;
                                                                                                                                                                                                                         PROSITE;
                                                                                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 promoting further caspase activity.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphorylated by similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                membrane of the nuclear envelope and the endoplasmic reticulum.

DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAF-1 (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and ARF-1 (By similarity) SUBCELLULAR LOCATION: Outer mitcobondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the apoptosis-activating factor (APAF-1) (By similarity). SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              caspase-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   activity, causes the release of cytochrome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTM: Proteolytically cleaved by caspases cleaved protein, lacking the BH4 domain,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              release of cytochrome c from the mitochondria and/or by binding to
                                                                                                                                                                                                                                                                                                                                                                                             AJ271720; CAB92245.1; -.
                                                                                                                                                                                                                                                                                                                                                                                Q07817;
Similarity
                                                                                                                                                                                            PS01080;
PS01258;
PS01259;
                                                                                                                                                                   PS50063;
                                                                                                                                                                                                                                       PS50062;
                                                                                                                                                                                                                                                                                                                         IPR004725;
                                                                                                                                                                                                                                                                                                                                                                 IPR002475;
                                                                                                                                                                                                                                                   TIGR00865;
                                        10
90
133
184
209
64
70
236
                                                                                                                                                     Transmembrane;
                                                                                                                                                                                                                                                                                            Bcl-2;
BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Suppresses apoptosis in a variety of cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein is
                                                                                                                                                                                                                                                                             BCL;
                                                                                                                                                                                                                                                                BH4;
                                  30
104
152
199
230
65
70
26491
                                                                                                                                                                BH4_1;
BH4_2;
                                                                                                                                                                                             вн2;
вн3;
                                                                                                                                                                                                                                   BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                      Bcl2_reg.
                                                                                                                                                                                                                                                                                                                                    Bc12_BH4.
                                                                                                                                                                                                                                                                                                                                                                BCL2_family.
 14
19
                                                                                                                                                                                                                                                                                                                                                вс12_вн
. 68
                                                                                                                                                  Mitochondrion; Phosphorylation
                                          MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cleaved in vitro and in
                                                                              BH1.
BH2.
POTENTIAL.
             Score
                                        PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
BECADF1EF3337228 CRC64;
             131;
No.
                                                                  (BY CASPASE-3 AND CASPASE-9)
                                                                                                                                                                                                                                                                                                                                                                                                                                    (See http://www.isb-sib.ch/announce/
1.1e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (BH1)
(BH2)
(BH3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (BH4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               has
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            during apoptosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O
           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN.
DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pro-apoptotic into the cyto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    systems
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          jh a collaboration
EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCL2_MOUSE STANDARD
P10417; P10418;
01-MAR-1989 (Rel. 10, C
01-APR-1993 (Rel. 25, L
15-JUN-2002 (Rel. 41, L
                                                                                                                                                                                                                                                       MEDINE-97277291; PubMed=9113413, Jr.; Ito T., Deng X., Carr B., May W.S. Jr.; "Bcl-2 phosphorylation required for anti-apoptosis function."; "Riol. Chem. 272:11671-11673(1997).
                                                                                                                                                                                                                                                                                                                                                      Nucleic [3]
                                                                                                                                                           phosphatase 2A*.
J. Biol. Chem. 2
                                                                                                                                                                                    Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.; "Reversible phosphorylation of Bcl2 following interleukin bryostatin 1 is mediated by direct interaction with protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Negrini M., Silini E., Kozak C., Tsujimoto Y., Croce C.M.; Molecular analysis of mbcl-2: structure and expression of the murine gene homologous to the human gene involved in follicular lymphoma."; Cell 49:455-463(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN-BALB/c; TISSUE-Liver; MEDLINE-87187643; PubMed=3032455;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOUSE
                                             -
                                                                                                                                                                                                                                DEPHOSPHORYLATION BY PP2A.
MEDLINE=99069407; PubMed=9852076;
                                                                                                                                                                                                                                                                                                                                                                                 adult and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Apoptosis regulator Bcl-2. BCL2 OR BCL-2.
                                                                                                                                                                                                                                                                                                                                                                                          "Isolation and characterization of the chicken in a variety of tissues including lymphoid and
                                                                                                                                                                                                                                                                                                                                                                                                                          Eguchi Y., Ewert D.L., Tsujimoto Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=92375724; PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        REVISIONS TO 221-222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus
                                                                                                                                                                                                                                                                                                                                     PHOSPHORYLATION BY PKC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28
                           the apoptosis-activating factor (APAF-1). SUBUNIT: Forms homodimers, and heterodimers with BAX, Bcl-x(L). Heterodimerization with BAX requires intact
                                                                  permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding
                                                                                                                              FUNCTION: Suppresses apoptosis in a variety of cell system including factor-dependent lymphohematopoietic and neural
                                                                                                              Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HLHTWIQDNGGWDAFVELYGPSVRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FTARGREATVVEELERDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43;
                                                                                                                                                                                                                                                                                                                                                                  Acids Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Mouse)
                                                                                                                                                           273:34157-34163(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
 Also
                                                                                                                                                                                                                                                                                                                                                                20:4187-4192(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chordata;
Rodentia;
             necessary for anti-apoptotic activity
 interacts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last annotation
                                                                                                                                                                                                                                                                                                                                    AND MUTAGENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALPHA AND BETA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Veri
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
 APAF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                     Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                     SERINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      57;
                                                                                                                                                                                                                                                                                                                                                                                             bcl-2 gene: expression
neuronal organs in
                                                                                                                                                                                                                                                                                                                                     RESIDUES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murinae;
                                                                                                                                            systems
                           BAD,
BH1 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      92;
                                                                     binding to
                                                                                                                                                                                                       og
R
                           ), BAK and . and BH2
                                                                                                                              cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         117
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membrane of the nuclear ALTERNATIVE PRODUCTS: 2

LOCATION: Outer mitochondrial membrane, intracellular the nuclear envelope and the endoplasmic reticulum. PRODUCTS: 2 isoforms; alpha (shown here) and beta;

SUBCELLULAR

are produced by alternative splicing. TISSUE SPECIFICITY: Expressed in a va

DOMAIN: The BH4 domain

interaction with

-!- PTM: Proteolytically cleaved by caspases during apoptosis.
cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytos promoting further caspase activity.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.
-!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DOMAIN.
-!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.

cytosol

The

protein

anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bc12 appears to be phosphorylated by other protein kinases, such as ERKs and stress-activated kinases.

Dephosphorylated by protein phosphatase 2A (PP2A).

PTM: Phosphorylation/dephosphorylation on Ser-70

RAF-1

required

for

anti-apoptotic

activity and

regulates

Bc12

variety of tissues

the European Bioinformatics Institute. There are no rest use by non-profit institutions as long as its content modified and this statement is not removed. Usage by ar

restrictions and

on 9 a collaboration -

outstation

SWISS-PROT entry is copyright, It is produced through a ceen the Swiss Institute of Bioinformatics and the EMBL

This

between

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Ş
                                            Query Match
Best Local
               Matches
                                                                                                                                 PROSITE; PS50062; B
PROSITE; PS01080; B
PROSITE; PS01258; B
PROSITE; PS01259; B
PROSITE; PS01260; B
PROSITE; PS50063; B
                                                         Phosphorylation.
DOMAIN 10
DOMAIN 133
DOMAIN 184
TRANSMEM 209
SITE 34
MOD_RES 70
VARSPLIC 193
                                            SEQUENCE
                                                                                                                                                                                    SMART; SM00337;
SMART; SM00265;
                                                                                                                                                                                                   Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                     PIR; B25960; TVMSB1.
PIR; E37332; E37332.
HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                               or send
                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                         InterPro; IPR002475;
InterPro; IPR000712;
InterPro; IPR003093;
                                                                                                                                                                                                                                                                                                                       entities
                                                                                                                                                                                                                                               MGD; MGI:88138;
                                                                                                                                                                                                                                                                                                 EMBL;
28 VAQAKALG---
                                                                                                                                                                                                                                                                           A25960;
                                                                                                                                                                                                                                                                                 L31532; AAA37282.1;
M16506; AAA37282.1;
M16506; AAA37281.1;
               l Similarity
43; Conser
                                                                                                                                                                                                                                                                                                               s requires a license agreement (S an email to license@isb-sib.ch).
                                                                                                                                                                                                                   IPR004725;
                                                                                                                                                                              TIGR00865;
                                                                                                                            Alternative
                                            236
               Conservative
                                                                                                                                                                                                                                                                            TVMSA1
                                            AA;
                                                                                                                                                                                    BH4;
                                                                                                                                                                                                                                               Bc12.
                                                                                                                                                        вн2;
                                                                                                                                   BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                      65; bcl-2; 1.
BCL2_FAMILY;
                                                                                                                                                                BH1;
                                                          .30
104
152
199
230
35
70
236
                                                                                                                                                                                                          Bcl2_reg.
2; 1.
REYVHARLLRAGLSW-----SAPERASPAPG-
                                            26425
                      14.7%;
                                                                                                                                                                                                                        Bc12_BH.
Bc12_BH4
                                                                                                                                                                                                                                       BCL2_family.
                                                                                                                           splicing;
                     . 68;
                                            ¥
                                                                                                                                                                                                                                                                                          JOINED
               27;
              Pred. No. 1.407; Mismatches
                                                                BH4.
BH3.
BH1.
BH2.
POTENTIAL.
CLEAVAGE (BY CASPASES) (BY SIMILARITY).
PHOSPHORYLATION (BY PKC).
                            Score 130;
                                           GHK -> VGACLVE (IN AA85EF6B0766BE0A
                                                  DAFVELYGPSMRPLFDFSWLSLKTLLSLALVGACITLGAYL
GHK -> VGACLVE (IN ISOFORM BETA).
                                                                                                                                                                      _
                                                                                                                          Transmembrane; Mitochondrion;
                                                                                                                                                                                                                                                                                                                     (See http://www
                     .4e
                              DB
           в 1;
-05;
57;
                            Length
                                            CRC64;
              Indels
                                                                                                                                                                                                                                                                                                                     isb-sib.
                                                                                                                                                                                                                                                                                                                         is
i for
             92;
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             Gaps
61
             5
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Institute

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
    This SW
between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gallus gallus (Chicken).

Gallus gallus (Chicken).

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Eukaryota; Metazoa; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               in a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Apoptosis regulator BCL2 OR BCL-2.
                                               ----
                                                                                                                                                                                                                        --
                                                                                                                                                                                                                                                                                   --
                                                                                                                                                                                                                                                                                                                                                                                                Cazals-Hatem D.L., Louie D.C., Tanaka S., Ree "Molecular cloning and DNA sequence analysis homologue of the Bel-2 oncoprotein."; Biochim. Biophys. Acta 1132:109-113(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=92379084; PubMed=1511008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 adult and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eguchi Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE=92375724;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-APR-1993 (Rel. 25,
01-APR-1993 (Rel. 25,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE=B-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Isolation and characterization of the chicken in a variety of tissues including lymphoid and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    200709;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCL2_CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     118
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 L
                                            DOMAIN: The BH4 domain is required for antifor interaction with RAF-1 (By SimilarIty) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH SIMILARITY: CHARAINS 1 BCL-2 FAMILY.
                                                                                                                                                                                                       Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAF-1 (By similarity). SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.
                                                                                                                                                              TISSUE SPECIFICITY: In adult chicken expressed, in thymus, kidney, heart, ovary and brain, with the highest levels in thymus. In the embryo, highly levels expressed in all tiss
                                                                                                                                                                                                                                                                               release of cytochrome c from the mitochondria and/or the apoptosis-activating factor (APAF-1).
SUBUNIT: Forms homodimers, and heterodimers with BAX.
                                                                                                                                                                                                                                                                                                                          permeability. Appears to function in a feedbac caspases. Inhibits caspase activity either by
                                                                                                                                                                                                                                                                                                                                                     FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cell Regulates cell death by controlling the mitochondrial membrane
                                                                                                                                               high levels in the bursa of Fabricius.
 SWISS-PROT ent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   variety of tissues including lymphoid
t and embryo.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HLHTWIQDNGGWDAFVELYGPSMRPLFDFSWLSLKTLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TLATWLRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FTARGREATVVEELFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ewert D.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lymphoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Res.
                entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=1508712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20:4187-4192(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5, Last sequence up 1, Last annotation Bcl-2.
               is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tsujimoto
copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
 Ht. It is produced through Bioinformatics and the EM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                 for anti-apoptotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ą
                                                                                                                                                                                                                                                                                                                                                                                                                              Reed J.C.;
sis of cDNA encoding chicken
                                                                                                                                                                                                                                                                                                                                       feedback loop system with
                                                                                      (BH1)
(BH2)
                                                                          (BH3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        219
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bcl-2 gene: expression neuronal organs in
                                                         DOMAIN.
DOMAIN.
                                                                                                                                                                                                                                                                                                            preventing and/or by }
                                                                                                         DOMAIN
jh a collaboration
EMBL outstation -
                                                                                                                                                                                                                                                                   BAD,
                                                                                                                                                                 tissues
                                                                                                                                    activity and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ٦Ť
                                                                                                                                                                                                                                                                                                             binding
                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                               spleen,
                                                                                                                                                                                                                                                                                                                                                                       cells.
                                                                                                                                                                                                                                                                                  BAK and
                                                                                                                                                                 with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
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European Bioinformatics Institute.

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RESULT 7
ARI_XA
ID ARI_X
ID ARI_X
AC Q9182
DT 01-NC
DT 01-NC
DT 15-JU
DE Apopt
OS Xenop
OC Amphil
OC Xenop
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     ARI_XENLA STANDARD; PRT; 228 AA.

Q91827;
Q11-NOV-1997 (Rel. 35, Created)
Q1-NOV-1997 (Rel. 35, Last sequence update)
Q1-NOV-1997 (Rel. 41, Last annotation update)
Q1-YUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator R1 (XR1) (Fragment).
Xenopus laevis (African clawed frog).
Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Vertel
Amphibla; Batrachla; Anura; Mesobatrachla; Pil
                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                            CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             modified and this statement is not removed. (entitles requires a linnor - -----
  Xenopodinae;
                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIGRFAMS; TIGR00865; bcl-2; PROSITE; PS50062; BCL2_FAMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SMART; SM00337; BCL; SMART; SM00265; BH4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Apoptosis;
                                                                                                                                                   197
                                                                                                                                                                                           137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR002475; BCL2_family.

InterPro; IPR0020712; Bcl2_BH.

InterPro; IPR003093; Bcl2_BH4.

InterPro; IPR004725; Bcl2_reg.
                                                                                                                                                                                                                77
                                                                                                                                                                                                                                                          61
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                                                                                                                                                                                                                                     77
                                                                                                                                                                                                                                                                             17
                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IL; D11382; BAA0197
IL; D11381; BAA0197
IL; Z11961; CAA7801
IL; A37332; A37332
IL; A37332; A37332
IL; S24390; S24390
IP; Q07817; IMAZ
                                                                                                                                                                                                                                                                                                EYVHARLLRAGLSWSAPERASPAP-----
                                                                                                                                                 GNSMRPLFDFSWISLKTILSLVLVGACITLGAYL 230
                                                                                                                                                                                                             TWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCV 136
                                                                                                                                                                                                                                  AEGLRPAPPGVHLALRQAGDEFSRRYQRDFAQMSGQLHLTPFTAHGRFVAVVEELFRDGV 136
                                                                                                                                                                                                                                                                             KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAAAAVAAAGASSHHRPEPPGSAAASEVPP
                                                                                                                                                                       -VSTKPGFRSHW-----
                                                                                                                                                                                         NWGRIVAFFEFGGVMCVESVNREMSPLVDNIATWMTEYLNRHLHNWIQDNGGWDAFVELY 196
                                                                                                                                                                                                                                                                                                                       Similarity
35; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PS50063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PS01080; BH1;
PS01258; BH2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PS01260;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                233 AA;
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139
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87
130
181
208
64
67
                                                                                                                                                                                                                                                                                                                       Conservative
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BAA01978.1; JOINED.
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139
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196
228
64
82
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101
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                                                                                                                                                                     LVATLCSFGRFL 159
                                                                                                                                                                                                                                                                                                                       26;
                                                                                                                                                                                                                                                                                                                  Pred. No. v.v.
6; Mismatches
                                                                                                                                                                                                                                                                                                                                Score 115.5;
Pred. No. 0.
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                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
E -> S (IN REF.
                    Craniata; Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                          -> T (IN REF. 2).
-> V (IN REF. 2).
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                                                   update)
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                                                                                                                                                                                                                                                                                                                      ).00035;
nes 62;
          Pipoidea;
                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                      2).
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                                                                                                                                                                                                                                                                                                                                                                CRC64;
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                    Euteleostomi;
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        Pipidae;
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BCLX_CHICK
                                                                                                                 RESULT 8
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                     DCLX_CHICK STANDARD: PRT; 2
Q07816; Q98908;
01-FEB-1995 (Rel. 31, Created)
01-NOV-1997 (Rel. 35, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Apoptosis regulator Bcl-X.
BCL2L1 OR BCLX OR BCL-X.
                                                                                                                                                                                                                                                                                                                                     TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
             Gallus gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE: PS01080; BH1; PROSITE: PS01258; BH2; PROSITE: PS50062; BCL2
                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X82462; CAA57845.1; HSSP; Q07817; IMAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBI the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is
                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                    Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; Bc12_BH.
InterPro; IPR003093; Bc12_BH4.
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                                                                                                                                                                                                                                            DKYLTEQGWMAQSDLGSRALVEDLVRYKLCQRSL---VPEPSGAASCALHSAMRAAGDEF
                                                                                                                                                                                                                                                                   DRWPTDKELVAQ----AKALGREYVHARLLRAGLSWSAPERASPA--------
                                                                                                                                                                                                                                                                                         l Similarity
33; Conserv
                                                                                                                                                                                                                                                                                                                                                                                              Transmembrane.
                                                                                                                                                                                                                                                                                                                                      228 AA;
                                                                                                                                                                                                                                                                                                                                                            120
171
                                                                                                                                                                                                                                                                                          Conservative
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                                                                                                                                                                                                                                                                                                                                     186 B
227 F
25068 MW;
                                                                                                                                                                                                                                                                                                                                                                       139
                                                                                                                                                                                                                                                                                                     12.7%;
21.3%;
                                                                                                                                                                                                                     --PG---GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQ
                                                         Last sequence update)
                                                                                                                                                                                                                                                                                         27;
                                                                                                                                                                                                                                                                                       Score 112.5;
Pred. No. 0.00
27; Mismatches
                                                                                                                                                                                                                                                                                                                                                BH1.
BH2.
POTENTIAL
 Craniata; Vertebrata;
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                                                                                           229
                                             update)
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nes 52;
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                                                                                                                                                                                                                                                                                                              Length
Euteleostomi;
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                                                                                                                                                                                                                                                                                         43;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    collaboration
                                                                                                                                                                                                                                                                                      Gaps
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PROSITE; PS01062; BCL2_FAMILY; 1
PROSITE; PS01080; BH1; 1.
PROSITE; PS01080; BH3; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01259; BH4_1; 1.
PROSITE; PS01260; BH4_2; 1.
PROSITE; PS01063; BH4_2; 1.
                                           TRANSMEM VARSPLIC
                                                                                                   DOMAIN
DOMAIN
                                                                                                                                         Apoptosis;
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Boise L.H., Gonzalez-Garcia M., Postema C.E., Din
Turka L.A., Mao X., Nunez G., Thompson C.B.;
"bcl-x, a bcl-2-related gene that functions as a
of apoptotic cell death.";
Cell 74:597-608(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the European Bioinformatics Institute. There are no rest
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entities requires a license agreement (See http://www.isb
or send an email to license@isb-sib.ch).
     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This
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Mol. Reprod. Dev. 47:26-29(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-Hubbard White Mountain; TJ MEDLINE-97264485; PubMed-9110311; Vilagrasa X., Mezquita C., Mezqui
                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                       SMART; SM00337;
SMART; SM00265;
                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    between
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR003093;
InterPro; IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN FUNCTION. INTACT BH1 AND BH2 DOMAINS ARE R APOPTOTIC ACTYLITY (BY SIMILARITY): CONTAINS 1 BCL-2 HOMOLOGY 1 (B SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (B SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (B SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (B SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (B SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTION: DOMINATI REGULATOR OF APOPTOTIC CELL DEATH.
FUNCTION: DOMINATI REGULATOR OF APOPTOTIC CELL DEATH.
FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS
ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PER
ENVELOPE (BY SIMILARITY).
ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN
SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; U26645; AAB07677.1;
A47537; A47537.
P; P53563; 1AF3.
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DOMAIN: BH4 DOMAIN SEEMS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Z23110; CAA80657.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR002475;
IPR000712;
                                                                                                                                                           Transmembrane;
       229
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125
176
206
185
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                                           24
96
144
191
223
223
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                                                                                                                                                                                                                                                                                                                                                                                             BCL2_family.
Bcl2_BH.
Bcl2_BH4.
Bcl2_reg.
     25733
       ME.
                                                                                                                                                             Alternative
BH3.
BH1.
BH2.
POTENTIAL.
POTENTIAL.
LSRK -> VRTALP (IN SHORT ISOFORM).
; A97D3A4D04C0E9DA CRC64;
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and
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(BH3)
(BH4)
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RESULT 9
BCLX_MOUSE
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Best Local S
Matches 31
                                             MEDLINE=97289584; PubMed=9144489; Grillot D.A., Gonzalez-Garcia M., Ekhte Ohta S., Seldin M.F., Nunez G.; "Genomic organization, promoter region localization of the mouse bcl-x gene.", J. Immunol. 158:4750-4757(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCLX_MOUSE STANDARD; P)
Q64373; Q60657; Q60658; Q61338;
Q1-NOV-1997 (Rel. 35, Created)
                                    -!- FUNCTIO
                                                                                                                                         rang X.-F., Weber G.F., Cantor H.;
"A novel Bcl-x isoform connected to
apoptosis in T cells.";
Immunity 7:629-639(1997).
                                                                                                                                                                                            STRAIN=C57BL/6 X CBA;
MEDLINE=98051053; Publ
                                                                                                                                                                                                                     SEQUENCE FROM
                                                                                                                                                                                                                                                                               MEDLINE=95052604; PubMed=7963517;
Fang W., Rivard J.J., Mueller D.L.,
                                                                                                                                                                                                                                                                                                       TISSUE=Pre-B cell;
                                                                                                                                                                                                                                                                                                                                        Thompson C.B., Nunez G.;
"bcl-XL is the major bcl-x mRNA form
development and its product localizes
Development 120:3033-3042(1994).
                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=C57BL/6; T:
MEDLINE=95331139;
                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. (ISOFORMS X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted
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STRAIN=2A4B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Apoptosis regulator Bcl-x.
                                                                                                                        SEQUENCE FROM
                                                                                                                                                                                                                                                                     "Cloning and molecular characterization
                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. (ISOFORMS X(L);
                                                                                                                                                                                                                                                                                                                                                                                         Gonzalez-Garcia M., Perez-Ballestero
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kamesaki H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=10090;
                                                                                                                                                                                                                                                       ymphocytes
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FUNCTION: Potent inhibitor of cell death. Inhibits activation caspases (By Similarity). Appears to regulate cell death by blocking the volatage-dependent anion channnel (VDAC) by bindit of it and preventing the release of the caspase activator,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IQENGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VHRSSLEVHEIVRASD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -LAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 24.4
31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                   H., Michaud
(MAR-1995)
                                                                                                                                                                                                                                             153:4388-4398(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         184
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                                                                                                                     N.A.
                                                                                                                                                                                                                     N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-Brain
                                                                                                                                                                                              CBA; TISSUE=Thymus;
PubMed=9390687; .
                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=7607090;
                                                                                                                                                                                                                    (ISOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 G.Y., 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Takatsu K., Okuma I
e EMBL/GenBank/DDBJ
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                                                                                                                                                                                                                                                                                                                                                       localizes
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Pred.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
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                                                                                               Ekhterae
                                                                                                                                                                                                                                                                                                                  X(S)
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No. 0.004;
                                                                                                                                                                       the
                                                                                                                                                                                                                                                                                Behrens
                                                                                                                                                                                                                                                                                                                                                      expressed during s to mitochondria.
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                                                                                                                                                                                                                                                                                                                                                                                                                           X(BETA)).
                                                                       analysis,
                                                                                                                                                                       н
                                                                                                                                                                                                                                                                     of mouse bcl-x in
                                                                                                                                                                                                                                                                                                                  AND X(DELTA-TM))
                                                                                                                                                                                                                                                                                                                                                                                       Ding L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A
                                                                                                                                                                       cell receptor regulates
                                                                                               D.,
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                                                                                                                                                                                                                                                                                T.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 M.;
J databases.
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                                                                                                Duan
                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                       Duan L., Boise L.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                               L.,
                                                                        chromosome
                                                                                                                                                                                                                                                                                                                                                       murine
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                                                                                               Inohara
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           by
binding
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                                    of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       177
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InterPro; IPR002475; BC InterPro; IPR000712; BC InterPro; IPR003093; BC InterPro; IPR004725; BC InterPro; IPR004725; BC Pfam; PF00452; BC1-2; 1 Pfam; PF02180; BH4; 1.
                                                                                                                                                        PROSITE;
PROSITE;
PROSITE;
PROSITE;
                                                                                      DOMAIN
DOMAIN
                                                                                                                                                                                                                             SMART; SM00337; BCL;
SMART; SM00265; BH4;
TIGRFAMS; TIGR00865;
                                                                                                                                                                                                                                                                                                                                                                          HSSP;
                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -
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                                                                                                                                                                                                                                                                                                                                                              MGD;
                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                         TRANSMEM
                                                                        DOMAIN
                                                                                                                  Apoptosis,
                                                                                                                                           PROSITE;
                                                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPLICING.
TISSUE SPECIFICITY: V
BRAIN, THYMUS, BONE N
TM) EXPRESSION IS EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity). The cleaved protein, lacking apoptotic activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (B SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (B SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (B SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (B SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   isoform promotes apoptosis.
SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANDS AND PERIUCLEAR SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERIUCLEAR ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
ALITERNATIVE PRODUCTS: 4 ISOFORMS; BCX-X(L) (SHOWN HERE), BCL-X(S), BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE ENTITLY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN: The BH4 domain is required for anti-apoptotic act: The BH1 and BH2 domains are required for both heterodimen with other Bc12 family members and for repression of cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POSTNATAL TISSUES, WHEREAS BCL-X(L) IS PREDOMINANTIVE POSTNATAL TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTM: Proteolytically cleaved by caspases during apsimilarity). The cleaved protein, lacking the BH4
                                                                                                                                                                                                                                                                                                                                                              MGI:88139;
                                                                                                                                                                                                                                                                                                                                                                                                                   U10101;
U10100;
U51279;
                                                                                                                                                                                                                                                                                                                                                                                       U78031;
U78030;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             L35048;
U10102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X83574;
L35049;
                                                                                                                                                                                                                                                                                                                                                                             P53563;
                                                                                                                                                        2; PS50062; BCL2_FAMILY; 1.
7; PS01080; BH1; 1.
7; PS01258; BH2; 1.
7; PS01259; BH3; 1.
7; PS01250; BH4_1; 1.
                                                                                                                                           PS01260; BH4_1; 1.
PS50063; BH4_2; 1.
                                                                                                                                                                                                                                                                                                   IPR002475; BCL2_family.
IPR000712; Bcl2_BH.
IPR003093; Bcl2_BH4.
IPR004725; Bcl2_reg.
                                                                                                                               Mitochondrion;
                             86
129
180
180
210
126
189
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; CAA58557.1; -.; AAA51039.1; -.; AAA51040.1; -.; AAA82174.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                               AAA51040.1;
AAA82174.1;
AAA82173.1;
AAA82172.1;
                                                                                                                                                                                                                                                                                                                                                                                         AAB96881.1;
                                                                                                                                                                                                                                                                                                                                                                                                     AAB96881.1;
                                                                                                                                                                                                                                                                                                                                                                                                                   AAC53460.1;
                                                                                                                                                                                                                                                                                                                                                              Bc121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from the mitochondrial membrane.
                               100
148
195
226
188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BONE MARROW,
                                                                                                                                                                                                                                bcl-2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENHANCED IN B AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA
                                                                                                                                                                                                                                                                                                                                                                                         JOINED
                                                                                                                               Alternative
           POTENTIAL.

MISSING (IN ISOFORM BCL-X(S)).

DTFVDLYGNNAAAESERGQEERNRWFLTGMTVAGVVLLGSL
FSRK -> VRTTPLVCPPLACVSLLCEHP (IN ISOFORM
BCL-X(BETA)).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AND KIDNEY. BCL-X(L) FIN B AND T LYMPHOCYTES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            equired for anti-apoptotic activity. required for both heterodimerization
                                                                                                                              splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (BH1) DOMAIN.
2 (BH2) DOMAIN.
3 (BH3) DOMAIN.
4 (BH4) DOMAIN.
                                                                                                                               Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                apoptosis
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bc1-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FOUND IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                death.
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RESULT 10
BCLX_RAT
Qy
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                               ovary: equine chorionic gonadotropin-mediated inhibition of granucell apoptosis is associated with decreased bax and constitutive bcl-2 and bcl-xlong messenger ribonucleic acid levels."; Endocrinology 136:232-241(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-Brain; Wesselingh S.L., David G.L., Submitted (JUN-1995) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCLX_RAT STANDARD; PRT; 233 AA. P53563; Q62678; P70614; P70613; Q62836; Q6408 01-CCT-1996 (Rel. 34, Created) 01-NOV-1997 (Rel. 35, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Apoptosis regulator Bcl-x.
                                                             the Bcl-2 protein family.";
J. Biol. Chem. 272:27886-27892(1997).
-!- FUNCTION: Potent inhibitor of cel
                                                                                                                                                                                                                                 Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L., "Expression of members of the bcl-2 gene family in
                                                                                                                                                                                                                                                           STRAIN-Sprague-Dawley; TISSUE-Ovary; MEDLINE-95129487; PubMed-7828536;
                                                                                                                                                                                                                                                                                                                                     MEDLINE-96278736; PubMed-8662675;
Shiraiwa N., Inohara N., Okada S.,
"An additional form of rat Bcl-x,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARSPLIC
                                                                                                                            Aritomi M., Kunishima N.,
                                                                                                                                          MEDLINE=98010630; PubMed=9346936;
                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
                                                                                                                                                                                                                                                                                                                            unspliced RNA,
                                                                                                                                                                                                                                                                                                                                                                               TISSUE=Thymus
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Michaelidis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE=Brain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rattus norvegicus (Rat)
                                                                                                   "Crystal structure of rat Bcl-xL. Implications for the function
                                                                                                                                                     X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                              Biol.
blocking the volatage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S) and Bcl-x(beta) isoforms promote access.
                                               FUNCTION: Potent inhibitor of cell death. Inhibits caspases (By similarity). Appears to regulate cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  is T.M.;
(DEC-1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                                                                                                                          N.A.
                                                                                                                                                                                                                                                                                               promotes apoptosis in promyeloid cells."; 271:13258-13265(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA;
                                                                                                                                                                                                                                                                                                                                                                                          (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ISOFORMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                            Inohara N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₹.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15;
                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 104; DE
Pred. No. 0.00
15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                          X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                   Choi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X(DELTA-TM))
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24D2AC79887E072E
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                                                                                                                                                                                                                                                                                                                                                                                                                               s.,
                                                                                                                                                                                                                                                                                                                                                                                           AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND X(S)).
                                                                                                                                                                                                                                                                                                                                                   Yuzaki M.,
                                                                                                                            Ishibashi Y.,
                                                                                                                                                                                                                                                                                                                                                                                           X(BETA))
                                                                                                                                                                                                                                                                                                                                                                                                                                   Veliuona
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q64087;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                     , Shoji S.-I., generated by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    databases
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                                                                                                                                                                                                                      in the immature 
hhibition of gran
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 233;
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                                                                                                                                                                                                                                                                                                                                                                                                                                 Hardwick J
                                                                                                                            Ohta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Murinae; Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (IN ISOFORM
                                                             activation
                                                                                                                                                                                                                                                                                                                                     ue,
                                                                                                                                                                                                                                                                                                                                                    Ohta
                                                                                                                                                                                                                      granulosa
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PROSITE; PS01086; BCL2_FAMILY; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01280; BH3; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01260; BH4_1; 1.
PROSITE; PS01260; BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00452; BC1-2; 1
Pfam; PF02180; BH4; 1
Pfam; PF02180; BH4; 1
SMART; SM00337; BCL; 1
SMART; SM00265; BH4: 1
                  CONFLICT
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EMBL;
EMBL;
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SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (-: SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (-: SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR003093;
InterPro; IPR004725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was the support of the supp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002475;
InterPro; IPR000712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or send
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                                                                                                                                                                                                                                                                                                                                                TRANSMEM
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                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
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DOMAIN: The BH4 domain is required for anti-apoptotic activity. DOMAIN: The BH4 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.

The BH4 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALTERNATIVE PRODUCTS: 3 ISOFORMS; BCL-X(L) (SHOWN HERE), BOAND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
TISSUE SPECIFICTY: EXPRESSED IN MOST TISSUES. BCL-X(BETA)
SPECIFICALLY EXPRESSED IN CEREBELLUM, HEART, AND THYMUS. II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity). SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X82537; CAA57886.1;

X82537; CAA57887.1;

JU10579; AAA19257.1;

JU72350; AAB17353.1;

JU72349; AAB17352.1;

JU72349; AAB17352.1;

JU72349; AAB17352.1;

JU72349; AAB1701.1;

JU72349; AAC60701.1;

JU72349; AAC60702.1;

JU72449; AAC60702.1;

JU72449; AAC60702.1;

JU72449; AAC60702.1;

JU7
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ALTERNATIVE PRODUCTS: 3 I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           requires a license agreement (See http://www.isb-sib.ch/announce/
an email to license@isb-sib.ch).
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вс12_вн4.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alternative
               MISSING (IN ISOFORM BCL-X(S)).
DTFVDLYGNNAAAESRKGQERENKWFLTGMTVAGVVLLGSL
FSRK -> VRTTPLVCPPLVCLSSVEIFNCPEWSPGMVVED
IDVSGDIPGLL (IN ISOFORM BCL-X(BETA)).
R -> Q (IN REF. 1).
F -> S (IN REF. 2).
A -> E (IN REF. 4).
A -> V (IN REF. 4).
A -> T (IN REF. 4).
FF -> SS (IN REF. 4).
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BH1.
BH2.
POTENTIAL.
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   A REF.
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(BH2)
(BH3)
(BH4)
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DOMAIN.
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RESULT 11
BCLX_PIG
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                     "Quantification of control of the regular term hibernating myocardium.";

J. Mol. Cell. Cardiol. 31:147-158(1999).

-!- FUNCTION: Potent inhibitor of cell death. Inhibits activation conspases (By similarity). Appears to regulate cell death by blocking the voltage-dependent anion channnel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane.

-!- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (similarity). Heterodimerization with BAX does not seem to be required for anti-apoptotic activity (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
SEQUENCE
                                                                                                                             modified entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-99171363; PubMed-10072723;
Bartling B., Hoffmann J., Holtz J.,
"Quantification of cardioprotective
"Quantification of cardioprotective
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCLX_PIG
077737;
                                                                                                                                                           the
use
                                                                     EMBL;
                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produbetween the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sus scrofa (Plg).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUL-1999 (Rel. 38, Crea
15-JUL-1999 (Rel. 38, Last
15-JUN-2002 (Rel. 41, Last
15-JUN-2005 regulator Bcl-x.
BCL2L1 OR BLC2L OR BCLX.
                                        InterPro; IPR002475;
InterPro; IPR000712;
                                                                                                               or send
                                                                                                                                                                                                                                                             - - -
            InterPro;
                           InterPro; IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=9823;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                             with other Bcl2 family members and for repressic prm: Proteolytically cleaved by caspases during similarity). The cleaved protein, lacking the BH apoptotic activity (By similarity). SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 4 (BH4) DC SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                       ween the Swiss Institute of Bioinf
European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES ENVELOPE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                              {\tt DOMAIN:} The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RGGW
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                                                                   AJ001203; CA
Q07817; 1MAZ
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17; Conser
                                                                                                              s requires a license agreement (S an email to license@isb-sib.ch).
                                                                                                                                          non-profit institutions as long and this statement is not removed
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             IPR004725;
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233
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                                                                                    CAA04597.1;
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          Bcl2_BH4
Bcl2_reg
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                                       BCL2_family.
Bcl2_BH.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 104; DB 1;
Pred. No. 0.0045;
.5; Mismatches 3
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2B62B6C63864BC8F
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                              (See http://www.isb-sib.ch/announce/
                                                                                                                                                           There
                                                                                                                                          Usage
                                                                                                                                                           are no rest
its content
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DOMAIN.
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RESULT 12
BCLX_HUMAN
ID BCLX_H
AC Q07817
DT 01-FEB
DT 01-FEB
DT 01-FEB
DT 15-JUN
DE APODEO
GN BCLZ21
OS HOMO S
OC Mammal
OX MEDLIN
RA HOLSE
RA KOTSM
RT "MAIT
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Matches 17
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                  Nature
[5]
                                                                                                                                                                                                                                                                 Sedlak T.W.,
                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. (ISOFORM BETA). Inohara N., Ohta S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                               "bcl-x, a bcl-2-related of apoptotic cell death.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Boise L.H., Gonzalez-Garcia M., Postema C.E.
Turka L.A., Mao X., Nunez G., Thompson C.B.,
"bcl-x, a bcl-2-related gene that functions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. (ISOFORMS X(L) MEDLINE=93364977; PubMed=8358789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apoptosis regulator Bcl-x.
BCL2L1 OR BCL2L OR BCLX.
Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BCLX_HUMAN STANDARD; PRT; 207817; Q92976; 01-FEB-1995 (Rel. 31, Created) 01-FEB-1995 (Rel. 31, Last sequence up 15-JUN-2002 (Rel. 41, Last annotation 15-JUN-2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGREAMS; TIGR00865; bcl-2;
                                                                                                                                                                                                                                                                                    MUTAGENESIS OF GLY-138, AND HETER MEDLINE=95372373; PubMed=7644501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Apoptosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE;
                                                                                                                        MEDLINE=96170038;
                                                                                                                                        MUTAGENESIS OF BH1 AND BH2 DOMAINS.
                                                                                                                                                                                   Proc. Natl.
                                                                                                                                                                                                                         Korsmeyer S.J.;
"Multiple Bcl-2 family members demonstrate selective
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
  STRUCTURE
                                        "Bax-independent inhibition of apoptosis by Bcl-XL.";
Nature 379:554-556(1996).
                                                                                Korsmeyer S.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
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                                                                                                                                                                                                        Bax."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NGGW 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RGGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QVLNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIATWMATYLNDHLEPWIQE 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                               74:597-608(1993)
                                                                                              E.H.-Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF02180;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PS01080;
PS01258;
PS01259;
PS01260;
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  ВY
                                                                                                                                                                                                                                                                                                                                                 (OCT-1996) to
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129
180
210
233 /
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                                                                                                                                                                                   Acad.
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  NMR
                                                                                                   Levine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BH4;
  OF.
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BH4_2; 1.
                                                                                                                        PubMed=8596636;
                                                                                                                                                                                Sci.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    death.";
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100
148
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                                                                                                В.,
                                                                                                                                                                                U.S.A.
                                                                                                                                                                                                                                                                                                         AND HETERODIMERIZATION
                                                                                                                                                                                                                                                                                                                                            the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WW.
                                                                                                   Boise
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 103; DB Pred. No. 0.00 15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    вн3.
вн1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                92:7834-7838(1995)
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                                                                                                   L.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AND X(S)).
                                                                                                                                                                                                                                                            Wang K., Boise L.H., Thompson C.B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            233
                                                                                                Thompson C.B., Hardwick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
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B
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ding L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dominant regulator
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                                                                                                                                                                                                                         dimerizations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lindsten
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EMBL;

EMBL;

1BXL;

29-OCT-97

1LXL; 21-APR-97. 1MAZ; 21-APR-97.

HGNC:992; BCL2L1

MIM: Genew;

InterPro; InterPro;

IPR003093; IPR004725; IPR002475; IPR000712;

Bc12\_BH. Bc12\_BH4. Bc12\_reg.

```
AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.

1. TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING LYMCHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.

1. DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domain are required for both heterodimerization with other Bcl2 family members and for repression of cell death. PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptosic activity.

1. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

1. SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

1. SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                         modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                            This
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                                                                                                                                                                                                                                                                                                                                                                                                                                                         +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Modulation of cell death bx Bcl-xL through caspase interaction.";
Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).
-:- FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the volatage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sattler M., Liang H., Nettesheim D., Meadows R.P., Har
Eberstadt M., Yoon H.S., Shuker S.B., Chang B.S., Minr
Thompson C.B., Fesik S.W.;
"Structure of Bel-XI-Bak peptide complex: recognition
regulators of apoptosis.";
Science 275:983-986(1997).
                                                                                                                                                                                                           or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                          the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <del>:</del>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=98118550; PubMed=9435230;
Clem R.J., Cheng E.H.~Y., Karp_C.L., Kirsch D.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Clem R.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ng S.L., Fesik S.W.;
ng S.L., Fesik S.W.;
an inhibitor of programmed
cell death.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Muchmore S.W., Sattler M., Yoon H.S., Nettesheim D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=96256675; PubMed=8692274;
                                                                                                                                                                                                                                                                                           between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLEAVAGE BY CASPASES,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=97172562; PubMed=9020082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hardwick J.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nature 381:335-341(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               apoptotic activity.

SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (BY SIMILARITY).

ALTERNATIVE PRODUCTS: 3 ISSECORMS, BCL-X(L) (SHOWN HERE), BCL-ALTERNATIVE PRODUCTS: 3 ISSECORMS, BCL-X(L) (SHOWN HERE), BCL-X(L)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CYLOCILLOME (). 1806 form promotes apoptosis. 1806 form promotes apoptosis subunit: Bcl-x(L) forms heterodimers with SUBUNIT: Bcl-x(L) forms heterodimers with SUBUNIT: Bcl-x(L) forms heterodimers with BAX does not seem
                                                                                                                                         ; Z23116;
; Z23115;
; U72398;
                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced sen the Swiss Institute of Bioinformatics and
                                                                                                                                                                                                                                                           non-profit institutions as long
                                                                                                                                         ; CAA80662.1;
; CAA80661.1;
; AAB17354.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AND MUTAGENESIS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Liang H., Meadows R. Chang B.S., Thompson
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E
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                                                                                                                                                                                                                                                                            There are no
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Earnshaw W.C., Ve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASP-61
                                                                                                                                                                                                                                                           as
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B.S., Minn A.J.,
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                                                                                                                                                                                                                                                           its content
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                                                                                                                                                                                                                                                                                                       through
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                                                                                                                                                                                                                                                                            restrictions
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                                                                                                                                                                                                                                                                                           EMBL
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                                                                                                                                                                                                                                                                                             collaboration
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IN CELLS
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                                                                                                                                                                                                                                                                                           outstation
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                                                                                                                                                                                                                                                                                                                   RESULT 13
BAXB_HUMAN
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Best Local S
Matches 17
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TIGREAMS; TIGRO0865; L
PROSITE; PS50062; BCL;
PROSITE; PS01080; BH1;
PROSITE; PS01258; BH2
PROSITE; PS01259; BH3
                                                                                                                                                BAXB_HUMAN
Q07814;
                                                                                                                                                                                                                                                                                                                 MUTAGEN
CONFLICT
SEQUENCE
         MEDLINE-93364978; PubMed-8358790; Oltvai Z.N., Milliman C.L., Korsm "Bcl-2 heterodimerizes in vivo wi
accelerates
                                     TISSUE-B-cell;
                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                              MUTAGEN
MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
SITE
                                                                        Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                    01-FEB-1995 (Rel. 31,
01-FEB-1995 (Rel. 31,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                              MUTAGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00452; Bcl-2; Pfam; PF02180; BH4; 1.
                                                                                          Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE;
                                                               NCBI_TaxID=9606;
                                                                                                             Apoptosis
                                                                                                                                                                                                                                                                                                                                                      MUTAGEN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                           125
                                                                                                                                                                                                       185 NGGW 188
                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tructure
                                                                                                                                                                                                                          RGGW
                                                                                                                                                                                                                                           QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIAAWMATYLNDHLEPWIQE 184
                                                                                                                                                                                                                                                           EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SM00337;
SM00265;
                                                                                                                                                                                                                                                                              17; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PS01260;
PS50063;
                                                                                                                                                                                                                          129
                                                                                                             regulator
                                                                                                                                                                                                                                                                                                                   233
programmed
                                                                                                                                                                                                                                                                                                                                    189
                                                                                                                                                                                                                                                                                                                                                                                         138
                                                                                                                                                                                                                                                                                                                                                                                                           138
                                                                                                                                                                                                                                                                                                                                                                                                                                     131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86
129
180
210
210
126
                                                                                                                                                                                                                                                                              Conservative
                                                                                         (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                   Æ,
                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BH4_1; 1.
BH4_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCL2_FAMILY;
BH1; 1.
                                                                                                                                                                                                                                                                                                                 189
70
26049
                                                                                                                                                                                                                                                                                                                                                              138
148
156
176
                                                                                                                                                                                                                                                                                                                                                                                                                            133
137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100
148
195
226
2188
188
                                                                        Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                          140
                                                                                                             BAX,
                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bcl-2;
                                                                                                                                                                                                                                                                                      11.5%;
                                                                                                           Created)
Last sequence update)
Last annotation update)
AX, cytoplasmic isoform
 cell
        in vivo with a
                                                                                                                                                                                                                                                                                                                   ₩;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alternative
                                                                                                                                                                                                                                                                              15;
                                                                                                                                                                                                                                                                                                                G-A: NO HETERODIMER
G-SE: NO HETERODIMER
D-A: NO EFECT ON CA
D-A: NO EFECT ON CA
D-A: NO EFECT ON CA
MD-SGA: REDUCES ANTI
BY ABOUT HALF.
D-A: NO EFECT ON CA
G -> A (IN REF. 1): C
G G-> A (IN REF. 1): C
                                                                                                                                                                                                                                                                                                                                                                                                 CASPASE-3.
FRD->VRA: NO HE'
VNW->AIL: LOSS (
ACTIVITY.
ACTIVITY.
                                                                                                                                                                                                                                                                             Score 102; DB 1;
Pred. No. 0.0071;
5; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLEAVAGE BY CASPASE-1.

CLEAVAGE BY CASPASE-1.

DIFVELYGNNAAAAESRKGQERENRWFLIGMTVAGVVLLGSL
FSRK -> VRRYPLVCFFSLASGQRSFTALLLYLFLLCWVI
VGDVDS (IN ISOFORM BCL-X(BETA)).
                                                                        Craniata; Vertebrata; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1
                                                                                                                                                                                                                                                                                                                                                                                                                                                       NO CLEAVAGE BY CASPASE-1 NOR
                                                                                                                                                                                                                                                                                                                                                     REDUCES ANTI-APOPTOTIC
                                                                                                                                                         218
         S.J.;
conserved
                                                                                                                                                                                                                                                                                                                                                              HETERODIMERIZATION
EFECT ON CASPASE-1
EFECT ON CASPASE-1
                                                                                                                                                                                                                                                                                                                          EFECT ON CASPASE-1 CLEAVAGE IN REF. 1; CAA80661).
                                                                                                                                                                                                                                                                                                                                                                                         HETERODIMERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  splicing;
                                                                                                                                                                                                                                                                                                                                                                                                                            NO HETERODIMERIZATION WITH BAX LOSS OF ANTI-APOPTOTIC
                                                                                                                                                          ₿
                                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                             beta
         homolog,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transmembrane;
                                                                                                                                                                                                                                                                                              Length 233
                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                         Euteleostomi; Homo.
                                                                                                                                                                                                                                                                                                                                                              WITH BAX.
WITH BAX.
CLEAVAGE.
CLEAVAGE.
         вах,
                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                     ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВY
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                                                                                                                                                                                                                                                                              0
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BCLW\_ID
AC
AC
DT
DT
DT
DT
CR

BCLW\_MOUSE STANDARD; p70345; 01-NOV-1997 (Rel. 35, Creat 01-NOV-1997 (Rel. 35, Last 15-JUN-2002 (Rel. 41, Last Apoptosis regulator Bcl-W. BCL2L2 OR BCLW.

Created)
Last sequence up

update)

PRT;

193

A

RESULT 14

MOUSE

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                                                                         Qγ
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                                                                                                                        QΥ
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                                                                                                                                                   Query Match
Best Local S
Matches 34
                                                                                                                                                                                                                                                               InterPro; IPR002475; BCL2_family.
InterPro; IPR000712; BC12_BH.
Pfam; pP00452; Bcl-2; 1.
SMART; SM00337; BCL; 1.
PROSITE; PS01080; BH1; 1.
PROSITE; PS01258; BH2; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01259; BH3; 1.
PROSITE; PS01259; BH3; 1.
                                                                                                                                                                                                    DOMAIN
DOMAIN
SEQUENCE
                                                                                                                                                                                                               PROSITE: PS50062; BULL----
Apoptosis; Alternative splicing.
Apoptosis; B41 73 BH3.
DOMAIN 98 118 BH1.
DOMAIN 150 165 BH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWI
between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -i- F
                                                                                                                                                                                                                                                                                                                                                                      MIM; 600040;
                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; L22474; AAA03620.1; PIR; B47538; B47538.
                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use by non-profit institutions as long a modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the
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                                                                                                                                                                                                                                                                                                                                                                                  HSSP; Q07817; 1M
Genew; HGNC:959;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALTERNATIVE SPLICING.

ITISSUE SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TISTIC SPECIFICITY: EXPRESSED IN A WIDE VARIETY OF TISTIC SPECIFIC SPECIFIC PROPERTY.

INTERPOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 FAMILY.

APOPTOTIC MEMBERS OF THE BCL-2 HOMOLOGY 1 (BH1) DOMAIN.

INTERPOPTOTIC MEMBERS 1 BCL-2 HOMOLOGY 2 (BH2) DOMAIN.

SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 3 (BH3) DOMAIN.

SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
131
                         102
                                                 71
                                                                          76
                                                                                                  13
                                                                                                                           22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EN European Bioinformatics Institute. There are no resti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUBCELLULAR LOCATION: Cytoplasmic.
SUBCELLULAR LOCATION: Cytoplasmic.
The Membrane ISOFORM ALPHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ען 74:609-619(1993).
FUNCTION: ACCELERATES PROGRAMMED CELL DEATH BY BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: FORMS HOMODIMERS AND HETERODIMERS E1B 19K PROTEIN, BCL-X(L), MCL-1 AND A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HOMOLOG E1B 19K PROTEIN.
                                                                                                                        PTDKELVAQAKALGRE-YVHARLLRAGLSWSAPERA-SPAP-GGRLAEVCTVLLRLG---
              AMVHALVDCLGEFVRKTLATWLRRRGGWTDVLK
:: :: :|:|: | |:: :||| :||
                                                  DSNMELQRMIAAVDTDSPREVFFRVAADMFSDGNFNWGRVVALFYFASKLVLKALCTKVP
                                                                                                  PTSSEQIMKTGALLLQGFIQDRAGRMG--GEAPELALDPVPQDASTKKLSECLKRIGDEL
ELIRTIMGWTLDFLRERLLGWIQDQGGWVRLLK
                                                                                                                                                               Similarity
                                                                                                                                                                                                  59
98
150
218
                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 1MAZ
                                                                                                                                                                                                       AA;
                                                                                                                                                                                                    118
165
24220
                                                                                                                                                                11.3%;
22.2%;
                                                                                                                                                                                                    MW;
                                                                                                                                                      25;
                                                                                                                                                    Score 100; DB Pred. No. 0.01; 25; Mismatches
                                                                                                                                                                                                       F69DCD70F960192F CRC64;
 163
                       134
                                                                          ITWGKVVSLYSAAAGLAVDCVRQAQP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  There are no rest
                                                                                                                                                                           1;
                                                                                                                                                    52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOGETHER
                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN.
DOMAIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BAK, BAD
                                                                                                                                                                              218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BAK, BAD AN INTERACTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WITH BCL-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL
                                                                                                                                                    42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       s.
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D BY
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tions on its
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Matches
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                                                                                                                                                       DOMAIN
SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ross A.J., Waymire K.G., Moss J.E., Parlow A.F., S
Russell L.D., Macgregor G.R.;
"Testicular degeneration in Bolw-deficient mice.";
Nat. Genet. 18:251-256(1998).
                                                                                                                                                                                                                                                                                       SMART; SM00337;
SMART; SM00265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1
-i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2
-i- SIMILARITY: ORTAINS 1 BCL-2 HOMOLOGY 4
-i- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gibson L., Holmgreen S.P., Huang D.C., Bernard O., Copeland N.G., Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.; "bcl-w, a novel member of the bcl-2 family, promotes cell survival.";
                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; U59746; AAB09056.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                              or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            between
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oncogene 13:665-675(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=96358615; PubMed=8761287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                           Apoptosis.
                                                                                                                                                                                                                      PROSITE; PS50063;
                                                                                                                                                                                                                                                             PROSITE;
                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                               Pfam; PF02180;
                                                                                                                                                                                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                               MGD; MGI:108052;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- FUNCTION: PROMOTES CELL SURVIVAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=98160183; PubMed=9500547;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                         [nterPro;
                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002475;
                                                                          22
                                                                                                                Local
96
                                                   37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBCELLULAR LOCATION: Cytoplasmic.
TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN: BH4 DOMAIN SEEMS TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AND SALIVARY GLAND
LVAFFVFGAALCAESVNKEMEPLVGQVQDWMVAYLETRLADWIHSSGGWAE 146
                      VVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTD 131
                                                 PAADPLHQAMRAAGDEF-ETRFRRTFSDLAAQLHVTPGSAQQRFTQVSDELFQGGPNWGR
                                                                          PTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAPG-GRLAEVCTVLLRLGITWGK
                                                                                                   . Similarity
27; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                              an
                                                                                                                                                                                                                                                                          PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the Swiss
                                                                                                                                                                                                                                                                                                                                      IPR000712;
IPR003093;
                                                                                                                                                                                                                                                                                                                                                                                                                                              email to license@isb-sib.ch).
                                                                                                                                                        193 AA;
                                                                                                   Conservative
                                                                                                                                                                                  85
                                                                                                                                                                                                                                                                                                               ВН4;
                                                                                                                                                                                                                                                                                    BCL;
BH4;
                                                                                                                                                                                                                                                                                                                                                                                                       AAB86430.1; -.
                                                                                                                                                                                                                                                                                                                                                                                Bc1212
                                                                                                                                                                                                                                               BH1; 1.
BH2; 1.
                                                                                                                                                                                                                     BH4_2;
                                                                                                                                                     29
104
151
20790 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Institute of Bioinformatics and the EMBL outstation formatics and the EMBL outstation formatics institute. There are no restrictions on its institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata;
Rodentia;
                                                                                                              11.2%;
24.3%;
                                                                                                                                                                                                                                                                                                                                      Bc12_BH.
Bc12_BH4.
                                                                                                                                                                                                                                                                                                                                                                 BCL2_family.
                                                                                                     19;
                                                                                                 Pred. No. 0.01
9; Mismatches
                                                                                                                                                                    вн2
                                                                                                                            Score 99;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                        36CA185F5945DFB4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BE INVOLVED
                                                                                                                DB 1;
0.011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (BH2)
(BH4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IN THE ANTI-APOPTOTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (BH1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Usage
                                                                                                   63;
                                                                                                                             Length 193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Skinner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN.
DOMAIN.
                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for
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                                                                                                   Gaps
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                                                                          80
                                                   95
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RESULT 15

ARILLANIA
ID ARILLANIA
ID 191828
AC 091828
AC AMPALLA
ID 115-JUN
DE APOPTO
OX AMPALLA
OC AMPALLA
RP SEQUEN
RC TISSUE
RA CTUZ-F
RT "Cloni
RT Cell-s
CC -!- SI
CC -!- S
                                        Qy
                                                                                           В
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₽
                                                                                                                                                                                                                 Query Match
Best Local S
                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SUBCELLULAR LOCATION: Membrane-bound (Formation).
-!- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION OF OCCURS IN
BRAIN OF MID-METAMORPHOSIC TO POST-METAMORPHOSIC TADPOLES AN
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR11_XE
Q91828;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SMART; SM00337; BCL; 1.
SMART; SM00265; BH4; 1.
TIGRFAMS; TIGR00865; bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; X82461; CAA57844.1; -. HSSP; Q07817; 1MAZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cell-survival genes.";
Gene 158:171-179(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Apoptosis regulator R11 (XR11).
                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                  Apoptosis;
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS01258; BH2; 1.
PROSITE; PS50062; BCL2_FAMILY; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Cloning, characterization and expression of two Xenopus bcl-2-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cruz-Reyes J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=95331613; PubMed=7607538;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-Head
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS01080; BH1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
157
                                             126 RGGW 129
                                                                                              97
                                                                                                                                         66 EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 1 (BH1) SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY 2 (BH2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH SUBCELLULAR LOCATION: Membrane-bound (Potential).
                                                                                              QVMGELFRDGTNWGRIVAFFSFGRALCVESANKEMTDLLPRIVQWMVNYLEHTLQPWMQE
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                                                                                                                                                                                            l Similarity
17; Conserv
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101 120
152 167
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160
                                                                                                                                                                                                                                                                                                204 AA;
                                                                                                                                                                                            Conservative
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1534.145 Million cell updates/sec
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probable amino aci	e antigen precurso	Bcl-2 related - hu	spectrin beta chai	probable nitrate/n	anthranilate phosp	gene bcl-2 protein	probable MFS trans	probable integral	e antigen precurso	core antigen - hep	hypothetical prote	hypothetical prote	mannosyltransferas	DNA helicase [impo	hypothetical prote

## ALIGNMENTS

RESULT I53744

gene bcl-2 protein - rat
C.Species: Rattus norvegicus (Norway rat)
C.Species: Rattus norvegicus (Pervision 29-May-1998 #text\_change 16-Jul-1999
C.Accession: I53744
R.Satto, T.; Irie, S.; Krajewski, S.; Reed, J.C.
Gene 140, 291-292, 1994
A.Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein:
A.Reference number: I53744; MUID:94193015; PMID:8144041
A.Accession: I53744
A.; Molecule type: mRNA
A.Residues: 1-236 <RES>
A.Residues: 1-236 <RES
A.Residues: 1

RESULT 2  TVHUA1  TVHUA1  transforming protein bcl-2, splice form alpha - human  C;Species: Homo sapiens (man)  C;Date: 31-Dec-1986 #sequence_revision 07-Jun-1996 #text_change 15-Oct-1999  C;Accession: C37332; A29409; S02452; A24428; A27622; B27622  R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.  Nucleic Acids Res. 20, 4187-4192, 1992  A;Title: Isolation and characterization of the chicken bcl-2 gene: expression in a v.  A;Reference number: A37332; MUID:92375724; PMID:1508712	Oy 62GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEEVRK 117  Oy 62GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEEVRK 117	28 1 62	A; Cross-references: GB:L14680; NID:g408946; PIDN:AAA53662.1; PID:g408947 C; Genetics: A; Gene: bc1-2 C; Superfamily: bc1 transforming protein C; Superfamily: bc1 transforming protein Query Match Best Local Similarity 20.5%; Pred. No. 4.5e-06; Matches 45; Conservative 25; Mismatches 57; Indels 92; Gaps
5-Oct-1999 expression in a	LHLTP 120 EFVRK 117  ::: EYLNR 180	NRTPA 60	g408947 2; Gaps 5;

A; Status: nucleic acid sequence not shown; not compared with conceptual translation

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A; Nolecule type: mRNA
A; Nolecule type: mRNA
A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Residues: 1-95, 'A', 97-109, 'G', 111-236, 'S', 238-239 <TSU>
A; Cross-references: GB:M13994; NID:g179366; PIDN:AAA51813.1; PI
A; Note: this sequence has been corrected in reference A37332
A; Note: this sequence has been corrected in reference A37332
R: Seto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett,
  C; Species:
                        BCL-2 - rat (fragment)
                                                 RESULT
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A; Map position: 18q21.3-18q21.3
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A;Residues: 1-58,'T',60-116,'R',118-239 <CLE>
A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1; PID
A;Cross-references: GB:M14745; NID:g179370; PIDN:AAA35591.1; PID
Concogene Rs: 2, Zorn, S:, Jensen, J.P.; Coupland, R.W.; Ko, H.S.; Wri
Oncogene Res: 2, 263-275, 1988
A;Title: Consequences of the t(14;18) chromosomal translocation
A;Reference number: A27622; MUID:88217344; PMID:3285301
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A; Residues: 1-239 < EGU>
A; Residues: 1-239 < EGU>
A; Note: this report is a correction
R; Tsujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A; Title: Analysis of the structure, transcripts, and protein
A; Reference number: A29409; MUID:86259760; PMID:3523487
A; Accession: A29409
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A; Residues: 1-6/S', 8-58, 'T', 60-128, 'C', 130-239 <HUA2>
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Cell 47, 19-28, 1986
A;Title: Cloning and structural analysis of cDNAs for bcl-2
A;Reference number: A24428; MUID:87002488; PMID:2875799
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A;Residues: 1-58,'T',60-239 <HUA>
A;Accession: B27622
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Best Local
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                                                                                                                                              AFVELYGPSMRPLFDFSWLSLKTLLS
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                                                                                                                                                                                                                                            LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                                                                                                                                                                                                                                                                                                                         APGAAAGPALSPVPPVVHLTLRQAGDDFSRRYRRDFAEMSSQLHLTPFTARGRFATVVEE
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norvegicus
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Pred. No. 1.1e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                apoptosis; B-cell lymphoma;
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C;Species: Cricetulus griseus (Chinese hamster)
C;Date: 17-Nov-2000 #sequence_revision 17-Nov-2000
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Endocrinology 136, 232-241, 1995
A;Tille: Expression of members of the bcl-2 gene family in onstitutive bcl-2 and bcl-xlong messenger, ribonucleic acid A;Reference number: 153295; MUID:95129487; PMID:7828536
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C;Comment: This protein has ant
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A; Title: Cloning and functional analysis
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C;Accession: 167432
R;Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
                                                                                                                                                                                                                                                                                                                                                               A;Gene:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Reference number: JC7383
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A; Residues: 1-236 < RES>
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Best Local :
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 TLATWLRRRGGWTDVLKCV-VSTKPGFRSHWL-VATLCS
                                                                                                          VHRDMAARTSPLRPIVATTGPTLSPVPPVVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
                                                                                                                                                                               MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDVGDVDAAPLGAAPTPGIFSFQPESNPTPA 60
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18.9%;
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Pred. No. 1.6e
27; Mismatches
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1.8e-05;
1es 57;
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transforming protein bcl-2, splice form beta - human
N.Alternate names: apoptosis regulator bcl-2
C.Species: Homo sapiens (man)
C.Species: Homo sapiens (man)
C.Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 15-Oct-1999
C.Accession: B29409; I52566; D37332
R.TSujimoto, Y.; Croce, C.M.
Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
A.Title: Analysis of the structure, transcripts, and protein products of bcl-2, A.Reference number: A29409; MUID:86259760; PMID:3523487
A.Reference number: A29409; MUID:86259760; PMID:3523487
A.Residues: 1-205 cTSU>
A.Cross-references: GB:M13995; NID:9179368; PIDN:AAA51814.1; PID:9179369
A.Title: Frequent incidence of somatic mutations in translocated BCL2 oncogenes
A.Title: Frequent incidence of somatic mutations in translocated BCL2 oncogenes
A.Reference number: I52566; MUID:92096610; PMID:1339299
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A; Residues: 1-33, 'E', 34-22
C; Genetics:
A; Gene: BCL2
A; Introns: 192/3
C; Superfamily: bcl transfor
C; Keywords: alternative sp
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A; Reference :
A; Accession:
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A; Residues: 1-236 < NEG>
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Best Local
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  I52566
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ternative splicing; mitochondrion; transforming protein;
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,'E',34-220,'AL'
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19.6%;
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jimoto, Y.
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Pred. No. 2.2e-05;
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                                               oncogenes
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A; Molecule type: |
A; Residues: 1-33,
C; Genetics:
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TVMSB1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross references: GB.S72602; NID:g241046; PIDN:AAD14111.1; PID:g4261811 R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y. Nucleic Acids Res. 20, 4187-4192, 1992 A;Title: Isolation and characterization of the chicken bcl-2 gene: expres A;Reference number: A37332; MUID:92375724; PMID:1508712 A;Accession: D37332
                                Qγ
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C; Keywords: alternative
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C;Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
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A; Map position: 18q;
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A;Molecule type: DNA
A;Residues: 1-131 <TAN>
                                                                                                                                                                                                                                                                                                                       A; Gene: BCL2
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                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: I
A; Residues: 1-199
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                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: B25960
                                                                                                                                                                                                                                                                                                                                                                                                                            A; Reference number: A90893;
                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Title: Molecular analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cell 49,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R; Negrini,
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                                                                                                                                                                             28 VAQAKALG-----REYVHARLLRAGLSW-----SAPERASPAPG----
                                                                                                                                             455-463,
FTARGREATVVEELERDGVNWGRIVAEEEEGGVMCVESVNREMSPLVDNIALWMTEYLNR
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                                                                                                                                             MAQAGRTGYDNREIVMKYIHYKLSQRGYEWDAGDADAAPLGAAPTPGIFSFQPESNPMPA
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                                                                       VHREMAARTSPLRPLVATAGPALSPVPPCVHLTLRRAGDDFSRRYRRDFAEMSSQLHLTP
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                                  GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRK 117
                                                                                                                                                                                                                                                                                  bcl transforming protein ternative splicing; trans
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18q21.3-18q21.3
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19.0%;
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17.9%;
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Pred. No. 7
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No. 9.2e-05;
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.6e-05;
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C; Superfamil
C; Keywords:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Accession: B37332; S35452
R;Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A;Title: Isolation and characterization of A;Reference number: A37332; MUID:92375724; A;Accession: B37332
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                                                                                                                                                                                                                                                                                                            Nucleic Acids Res. 20, 4187-4192, 1992
A;Title: Isolation and characterization of
A;Reference number: A37332; MUID:92375724;
A;Accession: A37332
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C:Species: Gallus gallus (chicken)
C:Date: 03.Mar-1993 #sequence_revision 03-Mar-1993 #text_change
                                                                                                                                                                                                                          A;Cross-references:
C;Genetics:
                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-233 <E
                                                                                                                                                                                                                                                                                              A; Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-216 < EGU>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Status: nucleic acid sequence not shown
                                                                                                                       Query Match
Best Local
                                                                                                                                                                     Superfamily: bcl transforming protein Keywords: mitochondrion; transforming
                                                                                                       Matches
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                                 KYIHYKLSQRGYDWAAGEDRPPVPPAPAPAAAPAAVAAAGASSHHRPEPPGSAAASEVPP 76
                                                                     EYVHARLLRAGLSWSAPERASPAP-
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35; Conser
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                                                                                                Score 115.5; DB 2;
Pred. No. 0.0006;
Pred. No. 62;
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Pred. No. 0.00044;
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PMID:1508712
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 GGRLAEVCTVLLRLGI 76
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RESULT 10
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A;Title: Molecular cloning and DNA sequence analysis of cDNA A;Reference number: S24390; MUID:92379084; PMID:1511008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         transforming protein (Bcl-2) homolog - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change
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A;Title: Identification of a human cDNA encoding a novel bcl-x
A;Reference number: JE0203; MUID:98340865; PMID:9675101
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                                                                                                                                                                                                                                    C; Keywords: mitochondrion; transmembrane protein
                                                                                                                                                                                                                                                         A;Cross-references: EMBL:Z11961; NID:g6:C;Superfamily: bcl transforming protein
                                                                                                                                                                                                                                                                                                A; Molecule type: mRNA
A; Residues: 1-232 <CAZ>
                                                                                                                                                                                                                                                                                                                                                            A; Reference number: A; Accession: S24390
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A; Residues: 1-227 <BAN>
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C;Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       apoptosis regulator bcl-x isoform N;Alternate names: h-bcl-xbeta
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Best Local :
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                                                                                                                   EYVHARLLRAGLSWSAPERASPAP---
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16.0%;
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Pred. No. 0.0042
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Pred. No. 0.00083;
L5; Mismatches 41
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                                       GGRLAEVCTVLLRLGIT
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bcl-x transmembrane deleted - mouse
c;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #te
C;Accession: I49057
F;Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         apoptosis regulator bcl-x - chicken c;Species: Gallus gallus (chicken) C;Species: Gallus gallus (chicken) C;Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 16-Jul-1999 C;Accession: A47537 R;Boise, L.H.; Gonzalez-Garcia, M.; Postema, C.E.; Ding, L.; Lindsten, T.;
                                                                                                                                                                                                                                                                                                      A;Status: preliminary; translated A;Molecule type: mRNA A;Residues: 1-214 <RES>
                                                                                                                                                                                                                                                                                                                                                                                J. Immunol. 153, 4388-4398, 1994
A;Title: Cloning and molecular characterization of mouse A;Reference number: 149055; MUID:95052604; PMID:7963517
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A; Residues: 1-190 <BOT>
A; Cross-references: GB: Z23110; GB: L20120
C; Superfamily: bcl transforming protein
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A;Title: bcl-x, bcl-2-related gene that functions as a dominant regulator of apoptotic A:Reference number: A47537; MUID:93364977; PMID:8358789
A;Accession: A47537
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66 VHRSSLEVHEIVRASD------VRQALRDAGDEFELRYRRAFSDLTSQLHITPGTAYQ 117
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RGGW 129
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                                                                                              EVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRR 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IQENGGW 184
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                                                          QVVNELFRDGVNWGRIVAFFSFGGALCVESVDKEMQVLVSRIASWMATYLNDHLEPWIQE 184
                                                                                                                                                             Similarity
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                                                                                                                                                                                                                                                                                 EMBL:U10102; NID:g506649; PIDN:AAA82174.1; PID:g506650
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26.6%;
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                                                                                                                                      Score 104; DB 2;
Pred. No. 0.0076;
5; Mismatches 32;
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R;Michaelidis, T.M.
submitted to the EMBL Data
A;Reference number: S51761
A;Accession: S51761
A;Status: preliminary
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999
                                                                               A; Introns: 125, C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Species: Rattus norvegicus (Norway rat)
C;Date: 07-May-1995 #sequence_revision 01-Sep-1995 #text_change 02-Mar-2001
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A;Molecule type: mRNA
A;Residues: 1-233 <KAM>
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A;Title: Cloning and molecular characterization of mouse A;Reference number: I49055; MUID:95052604; PMID:7963517
                                                                                                                                         A; Experimental source: embryonic; brain A; Note: smaller form due to splicing
                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 1-125,189-233 <MI2>
                                                                                                                                                                                                                                           A; Status: preliminary
                                                                                                                                                                                                                                                             A; Accession: S51762
                                                                                                                                                                                                                                                                                A; Experimental source:
                                                                                                                                                                                                                                                                                  A;Cross-references: EMBL:X82537; NID:g607176; A;Experimental source: embryonic; brain
                                                                                                                                                                                                                                                                                                                                            A; Molecule type: DNA
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A; Reference number: S52866
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A; Residues: 1-233 < RE
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Rivard, J.J.; M
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26.6%; Pr
tive 15;
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Pred. No. 0.0084;
.5; Mismatches 32;
Score 104; DB 2;
Pred. No. 0.0084;
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Result
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Perfect score:
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Listing first 45 summaries
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872.393 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                              distribution
                                                                                                                                                                                                                         Description
                                    Human Bcl-2-like p
Breast and ovarian
Drosophila melanog
                                                                                                  Human Bok protein
Rat Bok protein se
Human ORFX ORF1208
  Drosophila
Human bcl2
                                                                                                                                                               Human Bok protein Rat Bok protein se
                                                                                                                                                                                                                                                                                                                                             to have a being printed,
                   melanog
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4		25 14.	14.	.5 14.	.5 14.	130 14.7	0 14.	0 14.	0 14.	0	0 14.	0 14.	1 14.	ω	3 15.	3 15.	3 15.	3 15.	3 15.	3 15.	3 15.	133 15.0	3 15.	3 15.	3 15.	3 15.	3 15.	3 15.	3 15.	3 15.	3 15.	4 15.	4 15.	4 15.
0	w	u	w	ω	w	ω	ω	w	ω	ω	N	Ν	ω	w	$\omega$	ω	ω	ω	$\omega$	w	w	239	ω	ω	ω	ω	ω	w	ω	ω	ω	ω	ω	w
16	20	17	21	20	17	15	23	22	22	20	20	17	22	23	23	23	22	22	22	22	22	22	22	22	20	20	19	16	16	14	9	22	22	17
33	AAW94345	101	AAY69203	4	$\mathbf{-}$	73	AAU76554	51	4	AAW87811	AAW94348	AAW01021	AAG64039	ABB05227	AAU76553	ABB75986		AAB35130		AAB74129		AAG64037	AAG64035	AAE08573	m	81	AAW40217	140	033	423	860	6403	640	AAW02383
Human bcl-2 protei	n Bcl-	osis-	acid s	Human Bcl-2 mutant	tosis-blo	$^{\circ}$	Bc1-2	Bc1-2.	e bcl-2.	ne Bcl	Human Bcl-2 mutant	osis-bl	Bcl-2 prote	D34A c	Bcl-2 poly	in sequence.	Bcl-2 pr	Bcl-2. Hom	BCL-2	bcl-2alp	bcl-2.	Bc1-2	Bc1-2	:1-2	human Bc1-2-	an Bcl-2	bc1'-2.	bcl-2 alpha	n bcl-ž pro	oncog	ce of bcl-2-	Bcl-2 prote	Bc1-2 p	Human BCL2. Homo

## ALIGNMENTS

RESULT

AAY14156;

27-JUL-1999 (first entry)

Human Bok protein sequence

AAY14156 standard; Protein; 170 AA

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Bok protein; Bcl-2-related ovarian killer, BH3i variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma, testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                     Homo
          N-PSDB; AAX61106
                   WPI; 1999-327356/27
                                                                          07-NOV-1997;
                                                                                                                                                                        proliferative disorder; human.
                                                                                            04-NOV-1998;
                                                                                                                20-MAY-1999
                                                                                                                                  WO9924453-A1
                                     Hsu SY,
                                                        (STRD )
                                                                                                                                                     sapiens
                                                        UNIV LELAND STANFORD JUNIOR
                                    Hsueh AJW;
                                                                           97US-0064943
                                                                                             98WO-US23523
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proto

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RESULT 2
AAY14154
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Best Local S
Matches 170
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok
                                                                                                                                                                                                                                                                       Bok protein; Bcl-2-related ovarian killer; BH31 variant; endometriosis; pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix; ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                Hsu SY,
                                                                                                                     04-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                Rat Bok protein sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY14154 standard; Protein; 170 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
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                                                 (STRD )
                                                                                   07-NOV-1997;
                                                                                                                                                         20-MAY-1999
                                                                                                                                                                                           WO9924453-A1
                                                                                                                                                                                                                           Rattus rattus
                                                                                                                                                                                                                                                              proliferative
                                                                                                                                                                                                                                                                                                                                                                                                    27-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              facilitates elucidation of apoptosis mechanisms.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                 UNIV LELAND STANFORD JUNIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
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                                                                                                                                                                                                                                                              disorder;
                                                                                   97US-0064943
                                                                                                                     98WO-US23523
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 884; DB 20;
Pred. No. 4.9e-93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
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AAY14155
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                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Sim
Matches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimentisation properties
                                                                                                                                                            Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular
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N-PSDB; AAX61104.
                             07-NOV-1997;
                                                             04-NOV-1998;
                                                                                                                                                                                                            ovarian carcinoma;
                                                                                                                                                                                                                      Bok protein; Bcl-2-related ovarian killer; BH3i variant; endometriosi pro-apoptotic protein; apoptosis inducer; hyperproliferation disease; reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;
                                                                                                                                                                                                                                                                                         Human Bok protein sequence
                                                                                                                                                                                                                                                                                                                          27-JUL-1999
                                                                                                                                                                                                                                                                                                                                                        AAY14155;
                                                                                                                                                                                                                                                                                                                                                                                        AAY14155 standard;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein and its related gene
                                                                                             20-MAY-1999
                                                                                                                            WO9924453-A1
                                                                                                                                                                                          proliferative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        facilitates elucidation of apoptosis mechanisms.
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                                                                                                                                                          sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TWLRRRGGWTDVLKCVVSTKPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            54-55; 62pp; English.
                                                                                                                                                                                            disorder; human
                            97US-0064943
                                                             98WO-US23523
                                                                                                                                                                                                         glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                        Protein;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
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Pred. No. 1.7e-89;
0; Mismatches 4;
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                                                                                                                                                                                                                                                           endometriosis;
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(STRD ) UNIV LELAND

STANFORD JUNIOR

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RESULT 4
AAY14153
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This sequence is a mammalian Bok (Bcl-2-related ovarian killer) protein, of the invention. Coding sequences for Bok or BH31 variants of pro-apoptotic Bok-related protein can be introduced into cell populations to upregulate expression of the proteins in order to induce apoptosis in the cell population. This is useful for treatment of diseases where there is hyperproliferation of reproductive tissue, e.g. uterine, testicular and ovarian carcinomas, endometriosis, squamous and glandular epithelial carcinomas of the cervix. Cell killing induced by Bok can be suppressed by co-expression with selective anti-apoptotic Bcl-2 proteins. The Bok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein can be used to elucidate apoptosis mechanisms in reproductive and other tissues, and provide a means for manipulating apoptosis. The Bok protein and transgenic animal are also useful for identifying ligands or substrates. Modulation of the gene activity in vivo is useful for prophylaxis and therapy of, e.g. cancer and other proliferative disorders. Bok genes are also useful for identification of cell type based on expression. Identification of Bok as a new pro-apoptotic protein with wide tissue distribution and heterodimerisation properties
                                                                                      pro-apoptotic protein; apoptosis inducer; hyperproliferation disease;
reproductive tissue; uterine carcinoma; testicular carcinoma; cervix;
ovarian carcinoma; glandular epithelial carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim
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                                            Rattus rattus
                                                                          proliferative
                                                                                                                                         Bok protein;
                                                                                                                                                                       Rat
                                                                                                                                                                                                      27-JUL-1999
                                                                                                                                                                                                                                                                   AAY14153 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
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                                                                                                                                                                     Bok protein sequence
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                                                                                                                                                                                                                                                                                                                                                                                                           WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGRLAEVCTVLLRL------
                                                                                                                                                                                                                                                                                                                                                                  STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER 170
                                                                                                                                                                                                                                                                                                                                                   STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Page 55-56; 62pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hsueh AJW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                      Bcl-2-related ovarian killer; BH3i variant; endometriosis;
                                                                                                                                                                                                    (first entry)
                                                                          disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA,
                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96.4%;
79.8%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
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Pred. No. 2.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ovarian killer),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                   AA
                                                                                      testicular carcinoma; cervix;
carcinoma; cancer; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .6e-89;
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Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence is a mammalian Bok (BCl-2-related ovarian killer)
CC protein, of the invention. Coding sequences for Bok or BH3i variants of
CC protein control bok-related protein can be introduced into cell populations
CC to upregulate expression of the proteins in order to induce apoptosis in
CC the cell population. This is useful for treatment of diseases where there
CC is hyperproliferation of reproductive tissue, e.g. uterine, testicular
CC and ovarian carcinomas, endometriosis, squamous and glandular epithelial
CC carcinomas of the cervix. Cell killing induced by Bok can be suppressed
CC by co-expression with selective anti-apoptotic BCl-2 proteins. The Bok
CC protein can be used to elucidate apoptosis mechanisms in reproductive and
CC other tissues, and provide a means for manipulating apoptosis. The Bok
CC protein and transgenic animal are also useful for identifying ligands or
CC substrates. Modulation of the gene activity in vivo is useful for
CC substrates. Bok genes are also useful for identification of cell type
Dased on expression. Identification of Bok as a new pro-apoptotic protein
CC with wide tissue distribution and heterodimerisation properties
                                                                                                                            Query Match
Best Local S
Matches 167
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  07-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (STRD ) UNIV LELAND STANFORD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                facilitates elucidation
      1 MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1999-327356/27.
                                                                                                                      al Similarity
167; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Page 53-54; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hsueh AJW;
                                                                                                                                                                                                                                                                                                                                                                   213 AA;
                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0064943
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                                                                                                                                                                                     93.7%;
78.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of apoptosis mechanisms
                                                                                                                      Score 828.5; DB ZV,
Pred. No. 1.5e-86;
""" matches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ovarian killer), a pro-apoptotic
                                                                                                                                                                                                                                                   20;
                                                                                                                            Indels
                                                                                                                                                                                                                                      Length 213;
                                                                                                                            43;
      60
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Gaps 1;

QΥ В 61 Н GGRLAEVCTVLLRL----MEVLRRSSVFAAEIMDAFDRSPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP ----GIT 77 60

В 78 61 GGRLAEVCTVLLRLGDELEQIRPSVYRNVARQLHIPLQSEPVVTDAFLAVAGHIFSAGIT

138 STKPGFRSHWLVATLCSFGRFLKAAFFLLLPER

STDPGFRSHWLVATLCSFGRFLKAAFFLLLPER

WGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEEVRKTLATWLRRRGGWTDVLKCVV

180

DЪ Ωy

121

RESULT 5 AAB41444

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181

AAB41444 standard;

Protein;

WWX DXX DXX ACX D

08-FEB-2001 (first entry)

Human ORFX ORF1208 polypeptide sequence SEQ ID NO:2416

Human; open reading frame; ORFX; detection; vulnerary; antipsoriatic; antiparkinsonian; anticonvulsant; osteopathic; antiarthritic; immunosuppressant; nootropic; neuroprotective; cytostatic; hepatotropic;

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Query Match
Best Local
                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAR-1999;
02-APR-1999;
05-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nucleic acids can be used to express ORFX proteins in gene therapy vectors. The proteins and nucleic acids may be used to treat cancers, proliferative disorders, neurodegenerative disorders, osteoarthritis, graft vs host disease, cardiovascular disease, diabetes mellitus, typertension, hypothyroidism, cholesterol ester storage, systemic lupus erythematosus, severe combined immunodeficiency (SCID), AIDS, viral, bacterial or fungal infection, malaria, autoimmune disorders, asthma,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antidiabetic; hypotensive; dermatological; immunosuppressive; antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic; antithyroid; and antianaemic. The sequences can be used for determining the presence of or predisposition to, or preventing or treating pathological conditions associated with an OREX-associated disorder. The
                                                                                                                                                                                                                                                                                                                                                                                                                                   allergies, aplastic anaemia, burns, wounds, bone and cartilage on nocturnal haemoglobinuria, antiinflammatory disease; to enhance coagulation; to inhibit thrombosis; and as a contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           antipsoriatic; antiparkinsonian; nootropic; neuroprotective;
osteopathic; anticonvulsant; antiarthritic; immunosuppressant;
immunostimulant; cardiant; thrombolytic; coagulant; vasotropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Novel nucleic acids and peptides derived from open reading useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cholesterol ester storage; systemic lupus erythematosus; infection; severe combined immunodeficiency; malaria; autoimmune disorder; asthma; allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              antianaemic; gene therapy; cancer; proliferative disorder; hypertension;
neurodegenerative disorder; osteoarthritis; graft vs host disease;
cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hypotensive; dermatological; immunosuppressive; antiinflammatory; antiviral; antibacterial; antifungal; antirheumatic; antithyroid;
                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31-MAR-2000; 2000WO-US08621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            thrombosis; contraceptive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bone damage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CURA-) CURAGEN CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       immunostimulant; thrombolytic;
   61
                                                          61
                                                                                                                                                                                         ۰
                                                             GGRLAEVCTVLLRL----
                                                                                                                                                        MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
GGRLAEVCAVLLRLGDELEMIRPSVYRNVARQLHISLQSEPVVTDAFLAVAGHIFSAGIT
                                                                                                                        MEVLRRSSVFAAEIMDAFDRWPTDKELVAQAKALGREYVHARLLRAGLSWSAPERASPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000-602362/57.
                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Page 1750-1751; 5507pp; English.
                                                                                                                                                                                                                                                                                                                                                                               213
                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0540763
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leach M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0127607.
99US-0127636.
99US-0127728.
                                                                                                                                                                                                                                                                                                                                                                            AA
                                                                                                                                                                                                                                                                              92.8%;
                                                                                                                                                                                                                                                    2;
                                                                                                                                                                                                                                                                              Score 820.5;
Pred. No. 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       coagulant; vasotropic; antidiabetic;
                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                    .2e-85;
                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                                                           21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            disease;
                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                           Length
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                                                                                                                                                                                                                                                                                                                 213;
                                                                                                                                                                                                                                                    43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    frame
                                                             -GIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    damage
                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                      60
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41 ARLLRAGLSWSAPERASPAPGGRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCVRQAQ 100

Matches Query Match Best Local (

96;

Conservative

5.

Similarity

54.8%; 73.8%;

Score 484; DE Pred. No. 2.3e 5; Mismatches

DB 22;

Length

6,

Gaps

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RESULT 6
AAB85665
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                              Bcl-2-like polypeptides (PEPI). The NAM1 and PEPI may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate Bcl-2-like polypeptides' expression. The NAM1 may be used to produce the soluble Bcl-2-like polypeptides by standard recombinant methodolgy. The polypeptides may also be used as antigens in the production of antibodies against Bcl-2 and in assays to identify modulators of Bcl-2 expression and activity. The anti-Bcl-2 antibodies and antagonists may be used to down regulate expression and activity. The anti-PEPI antibodies may also be used as diagnostic agents for detecting the presence of Bcl-2 polyps in samples (e.g. by enzyme linked immunosorbant assay (ELISA)). Disorders that may be prevented, diagnosed
                            and/or treated by the above methods include, immunodeficiencies (e.g. a gammaglobulinemia and B cell lymphoproliferative disorder), autoimmune disorders (e.g. rheumatoid arthritis and Grave's disease), allergic reactions, inflammations, respiratory diseases and cardiovascular disorders (a full list of disorders is given in the specification). The present sequence represents a human Bcl-2-like polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ruben
                                                                                                                                                                                                                                                                                                                                                                                             Nucleic acids encoding human Bcl-2-like polypeptides, preventing, diagnosing and/or treating - \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bcl-2-like polypeptide; autoimmune disorder; allergy; immunomodulatory; respiratory; cardiovascular; antiarthritic; immunostimulant; vaccine; immunosuppressive; antiinflammatory; gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB85665;
Sequence
                                                                                                                                                                                                                                                                                                                                                             Claim 12; Page 277-278; 285pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-2000;
07-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200157060-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (HUMA-) HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human Bcl-2-like polypeptide (clone HHFHE17).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB85665 standard; Protein; 134 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       78
                                                                                                                                                                                                                                                                                                                          invention provides nucleic acid molecules (NAM1) encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-476279/51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WGKVVSLYSAAAGLAVDCVRQAQPAMYHALVDCLGEEVRKTLATWLRRRGGWTDVLKCVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WGKVVSLYAVAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWTDVLKCVV 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAH47021.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Duan
134 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0179487
2000US-0180697
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SCI INC
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                               particularly breast and ovarian cancer. The nucleic acid sequences proteins, agonists and agonists may also be used in the diagnosis, prevention and treatment of immune disorders e.g. Addison's diseas allergies, autoimmune haemolytic anaemia, autoimmune thyroiditis, diabetes mellitus, Crohn's disease, multiple sclerosis, rheumatoid
                                                                                                                  isolation and characterisation of the DNA and protein sequences of the invention. The breast and ovarian cancer associated DNA, protein, agonist or antagonist sequences exhibit cytostatic; immunosuppressive; nootropic; neuroprotective; antiviral; antiallergic; hepatotropic; antidiabetic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antifungal; antiparasitic and cardiant activity. The polynucleotide and protein sequences are used in the diagnosis of cancer, polynucleotide and protein sequences are used in the diagnosis of cancer,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Addison's disease; allergy; autoimmune haemolytic anaemia; autoimmune thyroiditis; diabetes mellitus; Crohn's disease; multiple sclerosis; rheumatoid arthritis; ulcerative colitis;
                                                                                                                                                                                                                                              Sequences AAF21614 - AAF22031 represent DNA sequences encoding human proteins AAB59711 - AAB59128. The DNA and protein sequences are associated with breast and ovarian cancer. Included in the invention are sequences AAF22032 - AAF22040 and AAB59129 which are used in the
                                                                                                                                                                                                                                                                                                                                                                      New human breast and overian cancer associated gene sequences and the polypeptides encoded by these genes, useful in the prevention, treatment and diagnosis of cancer, immune disorders, cardiovascular disorders and neurological diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nootropic; neurpprotective; antiviral; antiallergic; l
antidiabetic; antiinflammatory; antiulcer; vulnerary;
antibacterial; antifungal; antiparasitic; cardiant; ir
                arthritis and ulcerative colitis;
                                                                                                                                                                                                                                                                                                                                      Claim 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-SEP-2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Breast and ovarian cancer associated antigen protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB58949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB58949 standard; Protein; 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             161
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            breast cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAF21852
                                                                                                                                                                                                                                                                                                                                      Page 1103; 1299pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000WO-US05881
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 disorder; wound healing; neurological disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ovarian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cancer;
                  cardiovascular disorders
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                               rheumatoid
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              such as
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RESULT 8
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                                                     discloses genomic DNA sequences (Asequences (ABL01840-ABL16175) and (ABB57737-ABB72072).
                                                                           useful in developmental biology and in elucidating cell signalling cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA
                                                                                                                                                                                   New isolated nucleic acid genes from Drosophila and interactions -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cerebral anoxia and
Sequence
                                The sequence data for this patent did not form specification, but was obtained in electronic:
                                                                                                                         capable of detecting 1000
                                                                                                                                    The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                          Disclosure; SEQ ID NO 18072;
                                                                                                                                                                                                                             N-PSDB; ABL07863
                                                                                                                                                                                                                                                                                                                     23-MAR-2000;
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 247
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73.8%;
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                                                                                                                                                                                                                                                             PWD,
                                                                                                                          or more genes from Drosophila. The
                                                                                                                                                                                           detection reagent for detecting for elucidating cell signalling
                                                                                                                                                                                                                                                                                                                                                                                                                                               biology; cell signalling;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        247
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Pred. No. 3.2e-47
                                                                                                                                                        21pp + Sequence Listing;
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Matches 43
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                                                                                                                                                                                        capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of
                                                                                Sequence
                                                                                                                                            sequences (ABL01840-ABL16175) and (ABB57737-ABB72072).
                                                                                                                                                                  insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA
                                                                                                                                                                                                                                                                                                                                                                                                          23-MAR-2000;
11-JUL-2000;
                                                                                                                   The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from
                                                                                                                                                                                                                            The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                                                                                                                     Disclosure;
                                                                                                                                                                                                                                                                           genes from Drosophila interactions -
                                                                                                                                                                                                                                                                                                   New isolated nucleic
                                                                                                                                                                                                                                                                                                                                                                                     (PEKE
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                                                                                                      scification, but was obtained in electronic
ftp.wipo.int/pub/published_pct_sequences.
ELVAQAKALGREYVHARLLRAG-LSWSAPER-::: | | | :|: | | | | | |: :|
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   developmental biology; cell signalling; insecticide;
                                   Conservative
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27.6%;
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No. 2
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at an early stage. It is based on the observation that disease may be caused by mutations in RNA rather than DNA. The invention describes the used of neuronal system RNA molecules, specifically proteins including beta-amyloid precursor protein (beta-APP), the microtubule associated proteins Tau and Big Tau, ubiquitin B, apolipoprotein E, microtubule. associated protein 2 (MAP2), neurofilament-L, neurofilament-M,
                                                                                                       multiple sclerosis, alcoholic liver disease, diabetes mellitus type II and many others listed) or susceptibility to these disorders. The method allows a definitive diagnosis of Alzheimer's disease in living patients,
                                                                                                                                         This invention describes a novel method for the diagnosis of a disease caused by, or associated with, an RNA molecule that has a frameshift mutation. The method is used to diagnose age-related diseases, especially cancer and a wide range of neurodegenerative disorders (e.g. Alzheimer's disease, Down's syndrome, myotonic dystrophy, Huntington's disease, multiple sclerosis, alcoholic liver disease, diabetes mellitus type II
                                                                                                                                                                                                                                                                                                                         Diagnosing disease by detecting frameshift mutations in RNA corresponding protein mutations - used to diagnose cancer an neurological diseases, particularly Alzheimer's disease, and for treatment and prevention with specific ribozymes or wild
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     diabetes mellitus type II; microtubule associated protein; Tau; Big Tau ubiquitin B; apolipoprotein E; MAP2; neurofilament-L; neurofilament-M; neurofilament-F; presenilin I; presenilin II; cellular tumour antigen; glial fibrillary acidic protein; GFAP; p53; semaphorin III; HUPF-1; bcl-2; B-cell leukemia/lymphoma 2.proto-oncogene; HMGP-C; NSP-A; high mobility group protein-C; neuroendocrine specific protein A.
                                                                                                                                                                                                                                                                       Disclosure; Figure 15;
                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                frameshift mutation; age-related disease; neurodegenerative disorde Alzheimer's disease; Down's syndrome; myotonic dystrophy; neuronal;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22-JUL-1999
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DB; AAX75766.
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The present sequence is human BCL2 from which a peptide capable of inhibiting BCL2 gene, or gene product, function in cell can be derived. The cDNA sequence encoding the peptide is sense oriented genetic suppressor element (GSE) for reversing
                                                                                                                                                          WPI;
                                                                                                                                                                                                                                                                                                                                                                                    Sense oriented; genetic suppressor element; GSE; reverse; BCL2; gene; mediated; suppression; apoptosis; mammalian; cell inhibition; sensitisation; cancer; chemotherapeutic agent; increase; treatment; induction; virus; infection; death; increase; treatment; induction; virus; infection; construct; disease; haematopoietic; neurological; recombinant construct;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      neurofilament-F, presenilin I, presenilin II, glial fibrillary acidic protein (GFAP), the cellular tumour antigen p53, B-cell leukemia/lymphoma 2 (bel-2) proto-nocogene, semaphorin III, HUFF-1, high mobility group protein-C (HMGP-C) and neuroendocrine specific protein A.
                                                                                                                  Sense
                                                                  Claim
                                                                                          against
                                                                                                      Sense oriented genetic suppressor element mediated inhibition of apoptosis, and for
                                                                                                                                                                                  Holzmayer
                                                                                                                                                                                                           (UNII ) UNIV
                                                                                                                                                                                                                                    17-MAR-1995;
                                                                                                                                                                                                                                                            14-MAR-1996;
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                                                                                                                                                                                                                                                                                                                                        HOMO
                                                                                                                                                                                                                                                                                                                                                                            decrease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human BCL2
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DB; AAT33694.
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                                                                                          chemotherapeutic
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                                                                 Pages
                                                                                                                                                                                  ΤA,
                                                                                                                                                                                                                                                                                                                                                                            expression; anticancer; non-Hodgkin's lymphoma;
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Pred. No. 5.2e-07;
                                                                                                                                                                                Schott B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GRLAEVCTVLLRLGITWGKVVSLYSAAAGLAVDCV
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    for reversing
sensitising cand

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RESULT 12
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XX O7-DE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for the treatment of cancer, but more generally to induce virus infected cell death, or to treat apoptosis related diseases of haematopoietic or neurological cells of The GSE peptide product or recombinant construct encoding the GSE can be used to decrease BCL2 gene expression by exerting an anticancer effect, e.g. in cases of non-Hodgkin's lymphoma and B cell malignancy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCL2 mediated suppression of apoptosis in a mammalian cell. The GSE and its peptide product can be used to sensitise cancer cells to chemotherapeutic agents, and to increase apoptosis, especially
                                                                                Claim
                                                                                                       disorders
                                                                                                                                                                                                                                    07-DEC-2000;
                                                                                                                                                                                                                                                                                  WO200142459-A1
                                                                                                                                                                                                                                                                                                         Synthetic.
                                                                                                                                                                                                                                                                                                                                         Human; Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                              AAG64036;
                                                                                                                                                                                                                                                                                                                                                                                                                                    AAG64036
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                                                                                                                New apoptosis
                                                                                                                                                                                      (HISM ) HISAMITSU PHARM CO
                                                                                                                                                                                                              09-DEC-1999;
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                                                                                                                                                                                                                                                                                                                                                                Human
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                                                                                                                                                                                                                                                                                                                                                               Bcl-2 protein mutant
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                                                                                Page
                                                                                                                                                                                                                                                                                                                                                                                                                                    standard;
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                                                                                                                                                                                                                                    2000WO-JP08667
                                                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                30-31;
                                                                                                                  inhibitors,
                                                                                                                                                                Kuma
                                                                                                                                                                                                              99JP-0350427
                                                                                                                                                                                                                                                                                                                                         therapy; apoptosis
                                                                                                                                                                                                                                                                                                                                                                                                                                   protein;
                                                                                                                                                                                                                                                                                                                                                                                      entry)
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                                                                             43pp; Japanese.
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Pred. No. 5.8e
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                                                                                                                for treating
                                                                                                                                                                                                                                                                                                                                          inhibitor; mutant.
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The invention relates to an apoptosis inhibitor comprising the amino acid sequence of Bcl-2 protein in which at least one serin residue is substituted by alanine or aspartic acid. The protein increased apoptosis inhibitory activity compared with the wild t Bcl-2 protein. The mutated Bcl-2 protein is useful in the treatm of disorders caused by apoptosis. The present sequence is a muta

wild type treatment

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Bcl-2 protein of the

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RESULT 13
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Best Local S
                                                                            The invention relates to an apoptosis inhibitor comprising the amino acid sequence of Bcl-2 protein in which at least one serine residue is substituted by alanine or aspartic acid. The protein has increased apoptosis inhibitory activity compared with the wild type Bcl-2 protein. The mutated Bcl-2 protein is useful in the treatment of disorders caused by apoptosis. The present sequence is a mutant
                                             Sequence
                                                                                                                                                                                                             WPI;
                                                                                                                                                     Claim 7; Page 33-34; 43pp; Japanese.
                                                                                                                                                                                                                                  Shibazaki F,
                                                                                                                                                                                                                                                                            09-DEC-1999;
                                                                                                                                                                                                                                                                                                07-DEC-2000; 2000WO-JP08667
                                                                                                                                                                                                                                                                                                                      14-JUN-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                   Human Bcl-2 protein mutant #3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAG64038 standard;
                                                                   Bcl-2 protein of
                                                                                                                                                                                      New apoptosis inhibitors, useful for treating apoptosis related
                                                                                                                                                                                                                                                     (HISM ) HISAMITSU PHARM CO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KYIHYKLAQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA 76
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD
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   40;
                                                                                                                                                                                                                                                                                                                                                                                                 Bcl-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40;
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   Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                  Kuma H;
                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                              ξ,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ξ
                                                                   the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein;
                                                                                                                                                                                                                                                                                                                                                                                                therapy; apoptosis inhibitor;
                                                                                                                                                                                                                                                                                                                                                                                                                                        entry)
             15.2%;
19.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15.2%;
19.4%;
   26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26;
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            Score 134;
Pred. No. 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 134;
Pred. No. 5.
   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
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5.8e-07;
            DB 22;
.8e-07;
                      Length 239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 239;
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GRLAEVCTV
   88;
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  Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
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37 EYVHARLLRAGLSW----

-- SAPERASPAPG 26;

Matches

Similarity

Conservative

Mismatches

Indels

88;

Gaps 61

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RESULT 14
AAP80987
ID AAP80
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Query Match
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                                                           A human bcl-2 gene substantially free of introns is claimed. Also claimed is a substantially pure preparation of a protein having an N-terminal end encoded by the first exon of the human bcl-2 gene wherein said protein is bcl-2-alpha having about 239 (AAP80987) or 205 (AAP80988) AA residues. B-cell neeplasms which are associated with t(14;18) chromosome translocations cause an increase in expression of both the mRNA and the protein prods. of the bcl-2 gene. This is used to detect B-cell neeplasms including follicular lymphomas as well as other lymphomas. Bacterial isolates available as ATCC 67147 and 67148 can be used to express bcl-2 gene products alpha (AAN81292) and beta (AAN91293) resp. in bacteria.
                                                                                                                                                                                                                                             Detection of B-cell neoplasms - by extn. of proteins or RNA from B-cells and specific antibody or DNA probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence of bcl-2-alpha encoded the 5.5 kb transcript.
                                      Sequence
                                                                                                                                                                                                                          Claim 12; Fig 2A-2D; 23pp; English.
                                                                                                                                                                                                                                                                                                                     WPI; 1988-008633/02
                                                                                                                                                                                                                                                                                                                                                                                                                           02-JUL-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B-cell neoplasm; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-DEC-1990
                                                                                                                                                                                                                                                                                                                                                                                                  09-JUL-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-JAN-1988.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EP252685-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAP80987;
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                                                                                                                                                                                                                                                                                                                                                                        (WIST-) WISTAR CORP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                                                                                                                                                        AAN81292
                                     239 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                  86US-0883687
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15.0%;
19.4%;
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Score 133;
Pred. No. 7
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 DB 9;
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                                                                                                                                                                                                                                                                quantitation
         Length
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17 KYIHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA 76

-GRLAEVCTV 70

62

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RESULT 15
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                                                                                                            Query Match
Best Local Similarity
Matches 40; Conserv
                                                                                                                                                                                                         A DNA construct comprising the bcl-2 coding sequence under control of elements allowing its expression is claimed. Myc-induced cell death can be inhibited in cultured cells by expressing bcl-2. Myc-induced cell death can be de-inhibited in tumour cells by admin.
                                                                                                                                                                   Sequence
                                                                                                                                                                                            of bcl-2 antisense oligonucleotides.
                                                                                                                                                                                                                                                                              Disclosure; Page 76-77; 109pp; English.
                                                                                                                                                                                                                                                                                                        Treating tumour cells by de-inhibiting Myc-induced apoptosis esp. by inhibiting expression of the BCL-2 oncogene e.g. with antisense oligo:nucleotide(s), also increasing survival of cultured cells by expressing BCL-2
                                                                                                                                                                                                                                                                                                                                                                               WPI; 1993-336908/42.
N-PSDB; AAQ49815.
                                                                                                                                                                                                                                                                                                                                                                                                                       Evan GI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-APR-1992;
02-APR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    02-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-OCT-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9320200-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cell death; apoptosis; inhibition; de-inhibition; bcl-2 oncogene; expression; myc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bc1-2 oncogene product
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR42312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR42312 standard; Protein; 239 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 (IMCR ) IMPERIAL CANCER RES TECHNOLOGY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197 AFVELYGPSMRPLFDFSWLSLKTLLS 222
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                             62
                                                       17
                                                                                   37 EYVHARLLRAGLSW-----SAPERASPAPG-----
77 APGAAAGPALSPVPPVVHLALRQAGDDFSRRYRGDFAEMSSQLHLTPFTARGRFATVVEE 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
                                                       KYTHYKLSQRGYEWDAGDVGAAPPGAAPAPGIFSSQPGHTPHPAASRDPVARTSPLQTPA
                                                                                                                                                                   239 AA;
                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92GB-0007275
92GB-0007276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93WO-GB00686
                                                                                                                         15.0%;
                                                                                                             26;
                                                                                                                          Score 133; DB 14;
Pred. No. 7.5e-07;
                                                                                                             Mismatches
                           -----GRLAEVCTV 70
                                                                                                                                      Length 239;
                                                                                                            Indels
                                                                                                             88;
                                                                                                            Gaps
                                                      76
                                                                                 61
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В
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    137
                                      71 LLRLGITWGKVVSLYSAAAGLAVDCVRQAQPAMVHALVDCLGEFVRKTLATWLRRRGGWT 130
LFRDGVNWGRIVAFFEFGGVMCVESVNREMSPLVDNIALWMTEYLNRHLHTWIQDNGGWD 196
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131 DVLKCV-VSTKPGFRSHWL-VATLCS 154 :: | :| | | : | | | ...

AFVELYGPSMRPLFDFSWLSLKTLLS 222

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